



File No. EA2020-123

**CITY OF RICHLAND**  
**Determination of Non-Significance**

**Description of Proposal:** Construction of an approximately 10,350 square foot fire station (Fire Station 75) with associated infrastructure on an approximate 1.5 acre site.

**Proponent:** Richland Fire & Emergency Services Dept.  
Attn: Len Zickler  
328 W. Jay Ave.  
Spokane, WA 99218

**Location of Proposal:** The proposed project will occur at 460 Battelle Blvd, Richland, WA (APN 114084013586003).

**Lead Agency:** City of Richland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

( ) There is no comment for the DNS.

( X ) This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for fourteen days from the date of issuance.

( ) This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

**Responsible Official:** Mike Stevens

**Position/Title:** Planning Manager

**Address:** 625 Swift Blvd., MS #35, Richland, WA 99352

**Date:** September 16, 2020

**Signature** \_\_\_\_\_

## Environmental Checklist

File No. EA2020-123 Fire Station 75

### A. BACKGROUND

1. Name of proposed project, if applicable: Richland Fire Station 75.
2. Name of Applicant: Richland Fire and Emergency Services Department
3. Address and phone number of applicant or contact person: Agent: Len Zickler, 328 W Jay Ave.  
Spokane, WA 99218  
(509) 720-3228.
4. Date Checklist Prepared: June 17, 2020.
5. Agency Requesting checklist: City of Richland
6. Proposed timing or schedule (including phasing, if applicable): It is anticipated construction of this fire station will begin summer 2020.
7. Do you have any plans for future additions, expansion or further activity related to or connected with this proposal? Not at this time.
8. List any environmental information you know that has been prepared or will be prepared, directly related to this proposal. None.
9. Do you know whether applications are pending for government approvals of other proposals directly affecting the property covered by your proposal? None.
10. List any government approvals or permits needed for your proposal, if known. SEPA approval, grading permit, building permit, utility/ROW permit.
11. Give brief, complete description of your proposal, including the proposed uses and size of the project and site. The proposal is to Construct an approximately 9,500 square-foot fire station including four apparatus bays totaling approximately 4500 ft.<sup>2</sup>.
12. Location of the proposal. Proposed Fire Station 75 is located at the northwest corner of Battelle Boulevard and Port of Benton Boulevard.

### B. ENVIRONMENTAL ELEMENTS

1. Earth
  - a. General description of the site (circle one): Flat.
  - b. What is the steepest slope on the site (approximate percent slope)? 2%
  - c. What general types of soil's are found on the site (For example, clay, sand, gravel, peat, muck)? The site is characterized generally by sandy soils.

- d. Are there surface indications or history of unstable soils in the immediate vicinity? No.
- e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. The project will require grading of approximately 4000 yd.<sup>3</sup> of on-site material. Cut and fill material will be balanced on site.
- f. Could erosion occur as a result of clearing, construction, or use? Erosion could occur. However an erosion and sedimentation control plan will be prepared and implemented during construction.
- g. About what percentage of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? Approximately 60% of the site will be covered with impervious surfaces.
- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: An erosion and sedimentation control plan will be implemented during construction.

## 2. Air

- a. What what type of emissions to the air would result from the proposal (i.e., dust, automobile, orders, industrial, woodsmoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known. Some dust will be generated during the construction of the project. Post construction, vehicle emissions typical of this type of facility will be generated by employees, visitors and firefighters during the conduct of business.
- b. Are there any off-site sources of emissions or odors that may affect your proposal? If so, generally describe. None known.
- c. Proposed measures to reduce or control emissions or other impacts to air, if any. None proposed.

## 3. Water:

### a. Surface Water:

(1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, salt water, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, identify what stream or river it flows into. None.

(2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe an attached available plans. No.

(3) Estimate the amount of fill and dredge material that would be placed in or removed from the surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

N/A

(4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities of known. No.

(5) Does the proposal lie within a 100-year floodplain. No.

(6) Does the proposal involve any discharge of waste materials to surface waters? If so, describe the type of waste and anticipated volumes of discharge. No.

b. Ground Water:

(1) Will groundwater be withdrawn, or water be discharged to ground water? Give general description, purpose and approximate quantities if known. No.

(2) Describe waste material to be discharged into the ground from septic tanks rather sanitary waste treatment facility. Describe the general size of the system, the number of houses to be served (if applicable) or the number of person(s) systems are expected to serve. None.

c. Water Runoff (including storm water):

(1) Describe the source of runoff (including stormwater) and method of collection and disposal if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. Runoff will occur from buildings and impervious surfaces as part of the project. Runoff will be retained on-site and infiltrated consistent with city of Richland storm drainage standards.

(2) Could waste materials enter ground or surface waters? If so, generally describe. No.

(3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? No.

d. Proposed measures to reduce or control surface, ground, and run off water impacts, if any. A storm drainage management plan will be prepared in conformance with city of Richland storm drainage standards.

(4) Plants

a. Check or circle type of vegetation found on the site: Native shrubs and grasses are found on the site.

b. What kind and amount of vegetation will be removed or altered? Native shrubs and grasses will be removed and replaced by site improvements and ornamental landscaping.

c. List threatened or endangered species known to be on or near the site. None known.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any. Areas of the site not covered by impervious surfaces will be improved with plantings, including, lawn, shrubs and decorative rock mulch.

e. List all noxious weeds and invasive species known to be on or near the site. None known.

5. Animals

a. Circle any birds and animals which of been observed on or near the site or are known to be on or near the site: Birds: hawk, songbirds. Mammals: ground squirrels, rodents.

b. List any threatened or endangered species known to be on or near the site. None known.

c. Is the site part of a migration route? If so, explain. The site is within the mapped Pacific Flyway.

d. Proposed measures to preserve or enhance wildlife, if any: None proposed.

e. List any invasive animal species known to be on or near the site. None known.

## 6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, woodstove, solar) will be used to meet the completed projects energy needs? Describe whether it will be used for heating, manufacturing, etc. Energy efficient gas and electric heating and cooling systems will be included in the project.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. No.

c. What kinds of energy conservation features are included in the plans for this proposal? List other proposed measures to reduce or control energy impacts, if any. Energy efficient heating and cooling systems will be included in the project conforming with the current energy code standards.

## 7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe. No.

(1) Describe any known or possible contamination at the site from present or past uses. None known.

(2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity. None known.

(3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the projects development or construction, or at any time during the operating life of the project. None proposed.

(4) Describe special emergency services that might be required. None proposed.

(5) Proposed measures to reduce or control environmental health hazards, if any: None proposed.

## b. NOISE:

(1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? None.

(2) What types and levels of noise would be created by or associated with the project on a short term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site. Some noise will be generated typical in the delivery of emergency services. This type of noise could be generated at all hours and anytime.

(3) Proposed measures to reduce or control noise impacts, if any: None proposed.

## 8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? This subject site is currently vacant. Surrounding properties consist of business research park uses.

b. Has the site been used for agriculture? No.

c. Describe any structures on the site. None.

d. Will any structures be demolished? No.

e. What is the current zoning classification of the site? Business Research Park.

f. What is the current comprehensive plan designation of the site? Business Research Park.

g. If applicable, what is the current shoreline master program designation of the site? N/A

h. Has any part of the site been classified as a critical area? If so, specify. No.

i. How many people will be employed on the site? Approximately 20 total.

j. Approximately how many people will the completed project displace? None.

k. Proposed measures to avoid to reduce displacement impacts, if any: N/A

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: Fire and emergency services are a permitted use in this zone.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long – term commercial significance, if any: None.

## 9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle or low income housing. None.

b. Approximately how many units, if any, would be illuminated? Indicate whether high, middle or low income. None.

c. Proposed measures to reduce her control housing impacts, if any: N/A

## 10. Aesthetics

a. What is the tallest height of any proposed structures, not including antenna; what is the principal exterior building materials proposed? Approximately 24 feet. The building will incorporate masonry and metal.

- b. What views in the immediate vicinity would be altered or obstructed? None.
- c. Proposed measures to reduce or control aesthetic impacts, if any. Site improvements will include an architecturally attractive building as well as associated landscape improvements.

#### 11. Light and Glare.

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur? The site and building will be appropriately lit at night.
- b. Could light or glare from the finished project be a safety hazard or interfere with views? No.
- c. What existing offsite sources of light or glare may affect your proposal? None.
- d. Proposed measures to reduce and control light and glare impacts, if any. Exterior lighting will include cut-off features to minimize glare to adjacent properties.

#### 12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity? None in the immediate vicinity.
- b. With the proposed project displace any existing recreational uses? If so describe. No.
- c. Proposed measures to reduce or control impacts on recreation, including recreational opportunities to be provided by the project or applicant, if any: None proposed.

#### 13. Historic and cultural preservation

- a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe. None known.
- b. Generally describe any landmarks or evidence of historic, archaeological, scientific or cultural importance known to be on or next to the site. None known.
- c. Proposed measures to reduce or control impacts, if any: None proposed.

#### 14. Transportation

- a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any. The site is located at the intersection of Battelle Boulevard and Port of Benton Boulevard. Primary access to the building will be off of Battelle Boulevard. Fire apparatus will utilize Battelle Boulevard. Service access will be off of Port of Benton Boulevard.
- b. Is the site currently served by public transit? If not, what is the approximate distance to the nearest transit stop? Public transit is available within blocks of the project site.





# RICHLAND FIRE STATION 75

## RICHLAND FIRE STATION

RICHLAND, WA 99354

JOB NUMBER: 20006



210 E Lakeside Ave t. 208.667.9402  
Coeur d'Alene, ID 83814 architectswest.com



09/02/2020 PERMIT SET

DATE PROJECT PHASE



### PROJECT CONTACTS

#### PROJECT OWNER

CITY OF RICHLAND  
625 Swift Avenue Phone:   
Richland, WA 99352 Fax:   
Email:

#### ARCHITECT OF RECORD

ARCHITECTS WEST  
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#### ELECTRICAL ENGINEER

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Erick Fitzpatrick Email: elfitzpatrick@ahbl.com

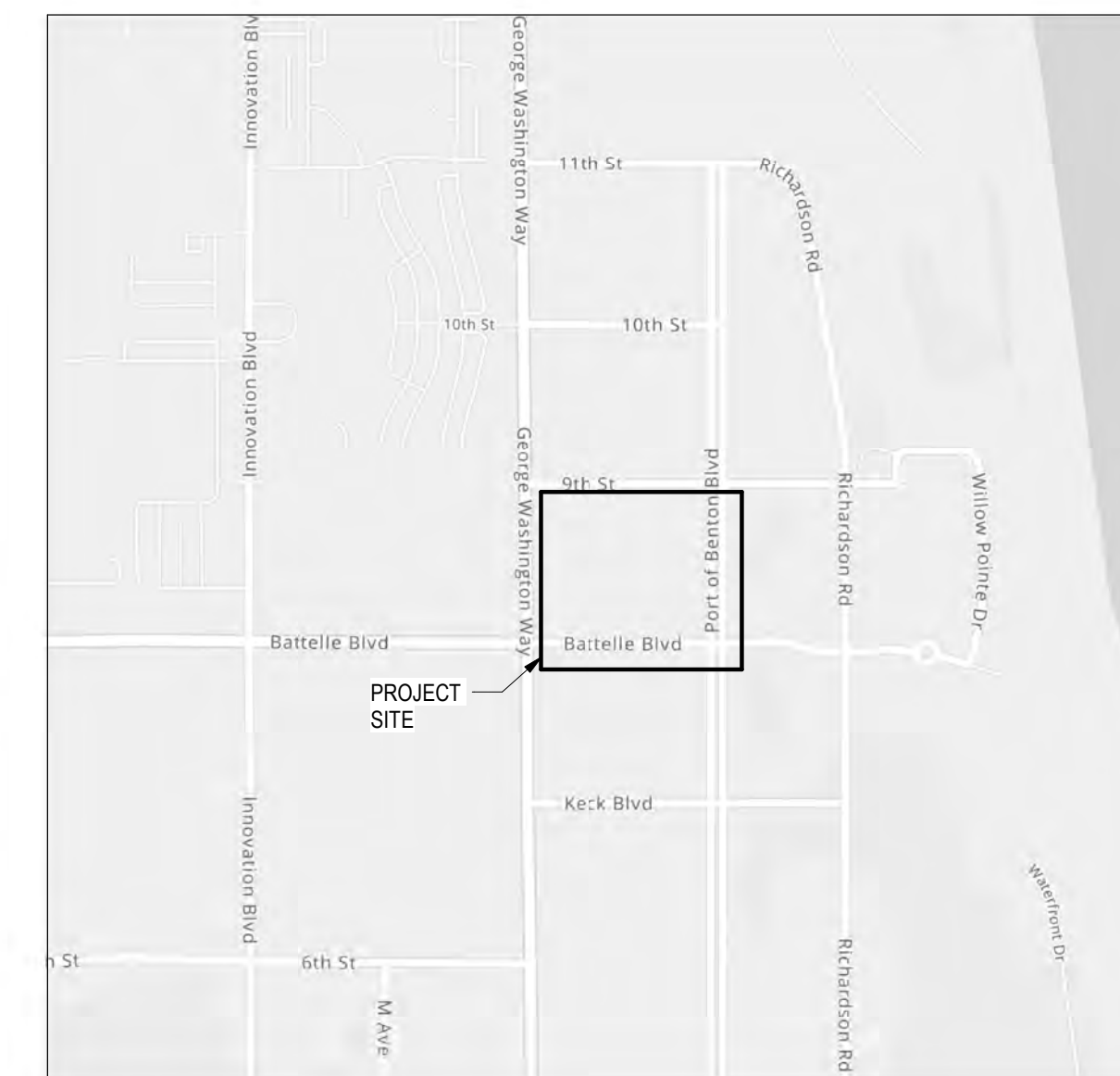
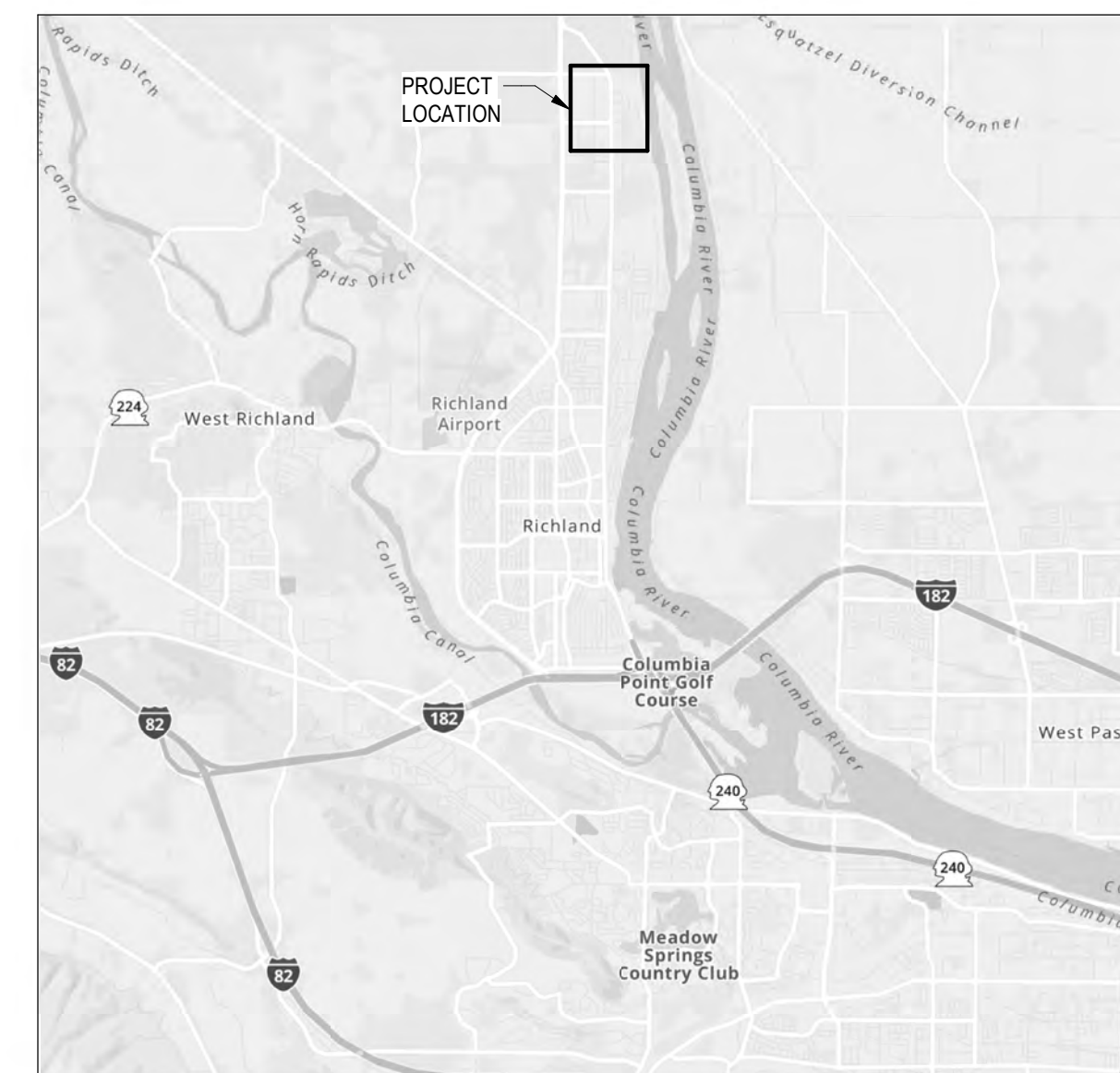
#### LANDSCAPE ARCHITECT

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Coeur d'Alene, ID 83815 Fax: 208.667.6103  
Bryce Olberding Email: bryceo@architectswest.com

#### DESIGN CONSULTANT

PERLMAN ARCHITECTS  
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Phoenix, AZ 85016 Fax: 480.951.3045  
Ken Powers Email: kenp@perلمانarchitects-AZ.com

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### SECTION C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS

- C406.1 REQUIREMENTS.** BUILDINGS SHALL COMPLY WITH NO LESS THAN TWO OF THE FOLLOWING:
2. REDUCED LIGHTING POWER IN ACCORDANCE WITH SECTION C406.3.
  8. REDUCED AIR INFILTRATION IN ACCORDANCE WITH SECTION C406.9.

### DRAWING KEYNOTING SYSTEM

A KEYNOTING SYSTEM IS USED ON THE DRAWINGS FOR MATERIAL REFERENCES AND NOTES. REFER TO THE KEYNOTE LEGEND ON THE DRAWINGS FOR THE INFORMATION WHICH RELATES TO EACH KEYNOTE SYMBOL ON THE RESPECTIVE DRAWINGS. EACH KEYNOTE SYMBOL CONSISTS OF A 6-DIGIT NUMBER FOLLOWED BY A PERIOD AND A LETTER SUFFIX. THE 6-DIGIT NUMBER RELATES TO THE SPECIFICATION WHICH GENERALLY COVERS THE ITEM THAT IS REFERENCED AND THE LETTER SUFFIX COMBINED WITH THE 6-DIGIT NUMBER AND PERIOD, CREATES A KEYNOTE SYMBOL WHICH IDENTIFIES THE SPECIFIC REFERENCE NOTATION USED ON THE DRAWINGS. THE SUFFIX DOES NOT RELATE TO ANY CORRESPONDING REFERENCE LETTER IN THE SPECIFICATIONS. THE ORGANIZATION OF THE KEYNOTING SYSTEM ON THE DRAWINGS, WITH THE KEYNOTE REFERENCE NUMBERS RELATED TO THE SPECIFICATIONS SECTIONS NUMBERING SYSTEM, SHALL NOT CONTROL THE CONTRACTOR IN DIVIDING THE WORK AMONG SUBCONTRACTORS OR IN ESTABLISHING THE EXTENT OF WORK TO BE PERFORMED BY ANY TRADE.

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Email:

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Fax:   
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460 Battelle Blvd

20006 RICHLAND FIRE STATION 75

20-02245

A0.00

**PENETRATION FIRESTOPPING**

**WALLS AND PARTITIONS**

PROVIDE AND INSTALL FIRESTOPPING AT ALL PENETRATIONS IN RATED WALLS AND PARTITIONS AS DESIGNATED AND AS PER SECTION 714 OF THE IBC. COORDINATE ACTUAL WALL CONSTRUCTION WITH WALL TYPES DESIGNATED IN THE WALL TYPES AND ON THE A-2 SERIES SHEETS

**714.1 SCOPE**

THE PROVISIONS OF THIS SECTION SHALL GOVERN THE MATERIALS AND METHODS OF CONSTRUCTION USED TO PROTECT THROUGH PENETRATIONS AND MEMBRANE PENETRATIONS OF HORIZONTAL ASSEMBLIES AND FIRE-RESISTANCE-RATED WALL ASSEMBLIES.

**714.1.1 DUCTS AND AIR TRANSFER OPENINGS**

PENETRATIONS OF FIRE-RESISTANCE-RATED WALLS BY DUCTS THAT ARE NOT PROTECTED WITH DAMPERS SHALL COMPLY WITH SECTIONS 714.2 THROUGH 714.3.3. PENETRATIONS OF HORIZONTAL ASSEMBLIES NOT PROTECTED WITH A SHAFT AS PERMITTED BY SECTION 717.6, AND NOT REQUIRED TO BE PROTECTED WITH FIRE DAMPERS BY OTHER SECTIONS OF THIS CODE, SHALL COMPLY WITH SECTIONS 714.4 THROUGH 714.5.2. DUCTS AND AIR TRANSFER OPENINGS THAT ARE PROTECTED WITH DAMPERS SHALL COMPLY WITH SECTION 717.

**714.2 INSTALLATION DETAILS**

WHERE SLEEVES ARE USED, THEY SHALL BE SECURELY FASTENED TO THE ASSEMBLY PENETRATED. THE SPACE BETWEEN THE ITEM CONTAINED IN THE SLEEVE AND THE SLEEVE ITSELF AND ANY SPACE BETWEEN THE SLEEVE AND THE ASSEMBLY PENETRATED SHALL BE PROTECTED IN ACCORDANCE WITH THIS SECTION. INSULATION AND COVERINGS ON OR IN THE PENETRATING ITEM SHALL NOT PENETRATE THE ASSEMBLY UNLESS THE SPECIFIC MATERIAL USED HAS BEEN TESTED AS PART OF THE ASSEMBLY IN ACCORDANCE WITH THIS SECTION.

**714.3 FIRE-RESISTANCE-RATED WALLS**

PENETRATIONS INTO OR THROUGH FIRE WALLS, FIRE BARRIERS, SMOKE BARRIER WALLS AND FIRE PARTITIONSSHALL COMPLY WITH SECTIONS 714.3.1 THROUGH 714.3.3. PENETRATIONS IN SMOKE BARRIER WALLS SHALL ALSO COMPLY WITH SECTION 714.4.4.

**714.3.1 THROUGH PENETRATIONS**

THROUGH PENETRATIONS OF FIRE-RESISTANCE-RATED WALLS SHALL COMPLY WITH SECTION 714.3.1.1 OR 714.3.1.2. EXCEPTION: WHERE THE PENETRATING ITEMS ARE STEEL, FERROUS OR COPPER PIPES, TUBES OR CONDUITS, THE ANNULAR SPACE BETWEEN THE PENETRATING ITEM AND THE FIRE-RESISTANCE-RATED WALL IS PERMITTED TO BE PROTECTED BY EITHER OF THE FOLLOWING MEASURES:

1. IN CONCRETE OR MASONRY WALLS WHERE THE PENETRATING ITEM IS A MAXIMUM 6-INCH (152 MM) NOMINAL DIAMETER AND THE AREA OF THE OPENING THROUGH THE WALL DOES NOT EXCEED 144 SQUARE INCHES (0.0929 M<sup>2</sup>), CONCRETE, GROUT OR MORTAR IS PERMITTED WHERE INSTALLED THE FULL THICKNESS OF THE WALL OR THE THICKNESS REQUIRED TO MAINTAIN THE FIRE-RESISTANCE RATING.
2. THE MATERIAL USED TO FILL THE ANNULAR SPACE SHALL PREVENT THE PASSAGE OF FLAME AND HOT GASES SUFFICIENT TO IGNITE COTTON WASTE WHEN SUBJECTED TO ASTM E119 OR UL 263 TIME-TEMPERATURE FIRE CONDITIONS UNDER A MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCH (2.49 PA) OF WATER AT THE LOCATION OF THE PENETRATION FOR THE TIME PERIOD EQUIVALENT TO THE FIRE-RESISTANCE RATING OF THE CONSTRUCTION PENETRATED.

**714.3.1.1 FIRE-RESISTANCE-RATED ASSEMBLIES**

PENETRATIONS SHALL BE INSTALLED AS TESTED IN AN APPROVED FIRE-RESISTANCE-RATED ASSEMBLY.

**714.3.1.2 THROUGH-PENETRATION FIRESTOP SYSTEM**

THROUGH PENETRATIONS SHALL BE PROTECTED BY AN APPROVED PENETRATION FIRESTOP SYSTEM INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E814 OR UL 1479, WITH A MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCH (2.49 PA) OF WATER AND SHALL HAVE AN F RATING OF NOT LESS THAN THE REQUIRED FIRE-RESISTANCE RATINGS OF THE WALL PENETRATED.

**714.3.2 MEMBRANE PENETRATIONS**

MEMBRANE PENETRATIONS SHALL COMPLY WITH SECTION 714.3.1.1 WHERE WALLS OR PARTITIONS ARE REQUIRED TO HAVE A FIRE-RESISTANCE RATING, RECESSED FIXTURES SHALL BE INSTALLED SUCH THAT THE REQUIRED FIRE RESISTANCE WILL NOT BE REDUCED.

**EXCEPTIONS:**

1. MEMBRANE PENETRATIONS OF MAXIMUM 2-HOUR FIRE-RESISTANCE-RATED WALLS AND PARTITIONS BY STEEL ELECTRICAL BOXES THAT DO NOT EXCEED 16 SQUARE INCHES (0.0 103 M<sup>2</sup>) IN AREA, PROVIDED THE AGGREGATE AREA OF THE OPENINGS THROUGH THE MEMBRANE DOES NOT EXCEED 100 SQUARE INCHES (0.0645 M<sup>2</sup>) IN ANY 100 SQUARE FEET (9.29 M<sup>2</sup>) OF WALL AREA. THE ANNULAR SPACE BETWEEN THE WALL MEMBRANE AND THE BOX SHALL NOT EXCEED 1/8 INCH (3.2 MM). SUCH BOXES ON OPPOSITE SIDES OF THE WALL OR PARTITION SHALL BE SEPARATED BY ONE OF THE FOLLOWING:
  - 1.1. BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES (610 MM) WHERE THE WALL OR PARTITION IS CONSTRUCTED WITH INDIVIDUAL NONCOMMUNICATING STUD CAVITIES;
  - 1.2. BY A HORIZONTAL DISTANCE OF NOT LESS THAN THE DEPTH OF THE WALL CAVITY WHERE THE WALL CAVITY IS FILLED WITH CELLULOSE LOOSEFILL, ROCKWOOL OR SLAG MINERAL WOOL INSULATION;
  - 1.3. BY SOLID FIREBLOCKING IN ACCORDANCE WITH SECTION 718.2.1;
  - 1.4. BY PROTECTING BOTH OUTLET BOXES WITH LISTED PUTTY PADS; OR
  - 1.5. BY OTHER LISTED MATERIALS AND METHODS.

**714.3.3 DISSIMILAR MATERIALS**

NONCOMBUSTIBLE PENETRATING ITEMS SHALL NOT CONNECT TO COMBUSTIBLE ITEMS BEYOND THE POINT OF FIRESTOPPING UNLESS IT CAN BE DEMONSTRATED THAT THE FIRE-RESISTANCE INTEGRITY OF THE WALL IS MAINTAINED.

**714.4 HORIZONTAL ASSEMBLIES**

PENETRATIONS OF A FIRE-RESISTANCE-RATED FLOOR, FLOOR/CEILING ASSEMBLY OR THE CEILING MEMBRANE OF A ROOF/CEILING ASSEMBLY NOT REQUIRED TO BE ENCLOSED IN A SHAFT BY SECTION 712.1 SHALL BE PROTECTED IN ACCORDANCE WITH SECTIONS 714.4.1 THROUGH 714.4.4.

**714.4.1 THROUGH PENETRATIONS**

THROUGH PENETRATIONS OF HORIZONTAL ASSEMBLIES SHALL COMPLY WITH SECTION 714.4.1.1 OR 714.4.1.2.

**EXCEPTIONS:**

1. PENETRATIONS BY STEEL, FERROUS OR COPPER CONDUITS, PIPES, TUBES OR VENTS OR CONCRETE OR MASONRY ITEMS THROUGH A SINGLE FIRE-RESISTANCE-RATED FLOOR ASSEMBLY WHERE THE ANNULAR SPACE IS PROTECTED WITH MATERIALS THAT PREVENT THE PASSAGE OF FLAME AND HOT GASES SUFFICIENT TO IGNITE COTTON WASTE WHEN SUBJECTED TO ASTM E119 OR UL 263 TIME-TEMPERATURE FIRE CONDITIONS UNDER A MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCH (2.49 PA) OF WATER AT THE LOCATION OF THE PENETRATION FOR THE TIME PERIOD EQUIVALENT TO THE FIRE-RESISTANCE RATING OF THE CONSTRUCTION PENETRATED. PENETRATING ITEMS WITH A MAXIMUM 6-INCH (152 MM) NOMINAL DIAMETER SHALL NOT BE LIMITED TO THE PENETRATION OF A SINGLE FIRE-RESISTANCE-RATED FLOOR ASSEMBLY, PROVIDED THE AGGREGATE AREA OF THE OPENINGS THROUGH THE ASSEMBLY DOES NOT EXCEED 144 SQUARE INCHES (9.290 M<sup>2</sup>) IN ANY 100 SQUARE FEET (9.3 M<sup>2</sup>) OF FLOOR AREA.
2. PENETRATIONS IN A SINGLE CONCRETE FLOOR BY STEEL, FERROUS OR COPPER CONDUITS, PIPES, TUBES OR VENTS WITH A MAXIMUM 6-INCH (152 MM) NOMINAL DIAMETER, PROVIDED THE CONCRETE, GROUT OR MORTAR IS INSTALLED THE FULL THICKNESS OF THE FLOOR OR THE THICKNESS REQUIRED TO MAINTAIN THE FIRE-RESISTANCE RATING. THE PENETRATING ITEMS SHALL NOT BE LIMITED TO THE PENETRATION OF A SINGLE CONCRETE FLOOR, PROVIDED THE AREA OF THE OPENING THROUGH EACH FLOOR DOES NOT EXCEED 144 SQUARE INCHES (9.290 M<sup>2</sup>).
3. PENETRATIONS BY LISTED ELECTRICAL BOXES OF ANY MATERIAL, PROVIDED SUCH BOXES HAVE BEEN TESTED FOR USE IN FIRE-RESISTANCE-RATED ASSEMBLIES AND INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS INCLUDED IN THE LISTING.

**714.4.1.1 INSTALLATION**

THROUGH PENETRATIONS SHALL BE INSTALLED AS TESTED IN THE APPROVED FIRE-RESISTANCE-RATED ASSEMBLY.

**714.4.1.2 THROUGH-PENETRATION FIRESTOP SYSTEM**

THROUGH PENETRATIONS SHALL BE PROTECTED BY AN APPROVED THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLED AND TESTED IN ACCORDANCE WITH ASTM E814 OR UL 1479, WITH A MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCH OF WATER (2.49 PA). THE SYSTEM SHALL HAVE AN F RATING/RATING OF NOT LESS THAN 1 HOUR BUT NOT LESS THAN THE REQUIRED RATING OF THE FLOOR PENETRATED.

**EXCEPTIONS:**

1. FLOOR PENETRATIONS CONTAINED AND LOCATED WITHIN THE CAVITY OF A WALL ABOVE THE FLOOR OR BELOW THE FLOOR DO NOT REQUIRE A T RATING.
2. FLOOR PENETRATIONS BY FLOOR DRAINS, TUB DRAINS OR SHOWER DRAINS CONTAINED AND LOCATED WITHIN THE CONCEALED SPACE OF A HORIZONTAL ASSEMBLY DO NOT REQUIRE A T RATING.
3. FLOOR PENETRATIONS OF MAXIMUM 4-INCH (102 MM) NOMINAL DIAMETER PENETRATING DIRECTLY INTO METAL-ENCLOSED ELECTRICAL POWER SWITCHGEAR DO NOT REQUIRE A T RATING.

**714.4.2 MEMBRANE PENETRATIONS**

PENETRATIONS OF MEMBRANES THAT ARE PART OF A HORIZONTAL ASSEMBLY SHALL COMPLY WITH SECTION 714.4.1.1 OR 714.4.1.2. WHERE FLOOR/CEILING ASSEMBLIES ARE REQUIRED TO HAVE A FIRE-RESISTANCE RATING, RECESSED FIXTURES SHALL BE INSTALLED SUCH THAT THE REQUIRED FIRE RESISTANCE WILL NOT BE REDUCED.

**EXCEPTIONS:**

1. MEMBRANE PENETRATIONS BY STEEL, FERROUS OR COPPER CONDUITS, PIPES, TUBES OR VENTS, OR CONCRETE OR MASONRY ITEMS WHERE THE ANNULAR SPACE IS PROTECTED EITHER IN ACCORDANCE WITH SECTION 714.4.1.1 OR TO PREVENT THE FREE PASSAGE OF FLAME AND THE PRODUCTS OF COMBUSTION. THE AGGREGATE AREA OF THE OPENINGS THROUGH THE MEMBRANE SHALL NOT EXCEED 100 SQUARE INCHES (6.450 M<sup>2</sup>) IN ANY 100 SQUARE FEET (9.3 M<sup>2</sup>) OF CEILING AREA IN ASSEMBLIES TESTED WITHOUT FEET PENETRATIONS.
2. CEILING MEMBRANE PENETRATIONS OF MAXIMUM 2-HOUR HORIZONTAL ASSEMBLIES BY STEEL ELECTRICAL BOXES THAT DO NOT EXCEED 16 SQUARE INCHES (10.323 M<sup>2</sup>) IN AREA, PROVIDED THE AGGREGATE AREA OF SUCH PENETRATIONS DOES NOT EXCEED 100 SQUARE INCHES (4.500 M<sup>2</sup>) IN ANY 100 SQUARE FEET (9.29 M<sup>2</sup>) OF CEILING AREA, AND THE ANNULAR SPACE BETWEEN THE CEILING MEMBRANE AND THE BOX DOES NOT EXCEED 1/8 INCH (3.2 MM).
3. MEMBRANE PENETRATIONS BY ELECTRICAL BOXES OF ANY SIZE OR TYPE, THAT HAVE BEEN LISTED AS PART OF AN OPENING PROTECTIVE MATERIAL SYSTEM FOR USE IN HORIZONTAL ASSEMBLIES AND ARE INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS INCLUDED IN THE LISTING.
4. MEMBRANE PENETRATIONS BY LISTED ELECTRICAL BOXES OF ANY MATERIAL, PROVIDED SUCH BOXES HAVE BEEN TESTED FOR USE IN FIRE-RESISTANCE-RATED ASSEMBLIES AND ARE INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS INCLUDED IN THE LISTING. THE ANNULAR SPACE BETWEEN THE CEILING MEMBRANE AND THE BOX SHALL NOT EXCEED 1/8 INCH (3.2 MM) UNLESS LISTED OTHERWISE.
5. THE ANNULAR SPACE CREATED BY THE PENETRATION OF A FIRE SPRINKLER, PROVIDED IT IS COVERED BY A METAL ESCUTCHEON PLATE.
6. NONCOMBUSTIBLE ITEMS THAT ARE CAST INTO CONCRETE BUILDING ELEMENTS AND THAT DO NOT PENETRATE BOTH TOP AND BOTTOM SURFACES OF THE ELEMENT.
7. THE CEILING MEMBRANE OF 1- AND 2-HOUR FIRE-RESISTANCE-RATED HORIZONTAL ASSEMBLIES IS PERMITTED TO BE INTERRUPTED WITH THE DOUBLE WOOD TOP PLATE OF A WALL ASSEMBLY THAT IS SHEATHED WITH TYPE X GYPSUM WALLBOARD, PROVIDED THAT ALL PENETRATING ITEMS THROUGH THE DOUBLE TOP PLATES ARE PROTECTED IN ACCORDANCE WITH SECTION 714.4.1.1 OR 714.4.1.2 AND THE CEILING MEMBRANE IS TIGHT TO THE TOP PLATES.

**714.4.3 DISSIMILAR MATERIALS**

NONCOMBUSTIBLE PENETRATING ITEMS SHALL NOT CONNECT TO COMBUSTIBLE MATERIALS BEYOND THE POINT OF FIRESTOPPING UNLESS IT CAN BE DEMONSTRATED THAT THE FIRE-RESISTANCE INTEGRITY OF THE HORIZONTAL ASSEMBLY IS MAINTAINED.

**714.4.4 PENETRATIONS IN SMOKE BARRIERS**

PENETRATIONS IN SMOKE BARRIERS SHALL BE PROTECTED BY AN APPROVED THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF UL 1479 FOR AIR LEAKAGE. THE L RATING OF THE SYSTEM MEASURED AT 0.30 INCH (7.47 PA) OF WATER IN BOTH THE AMBIENT TEMPERATURE AND ELEVATED TEMPERATURE TESTS SHALL NOT EXCEED:

1. 5.0 CFM PER SQUARE FOOT (0.025 M<sup>3</sup> S<sup>-1</sup> M<sup>2</sup>) OF PENETRATION OPENING FOR EACH THROUGH-PENETRATION FIRESTOP SYSTEM; OR
2. A TOTAL CUMULATIVE LEAKAGE OF 50 CFM (0.024 M<sup>3</sup>/S) FOR ANY 100 SQUARE FEET (9.3 M<sup>2</sup>) OF WALL AREA, OR FLOOR AREA.

**714.5 NONFIRE-RESISTANCE-RATED ASSEMBLIES**

PENETRATIONS OF NONFIRE-RESISTANCE-RATED FLOOR OR FLOOR/CEILING ASSEMBLIES OR THE CEILING MEMBRANE OF A NONFIRE-RESISTANCE-RATED ROOF/CEILING ASSEMBLY SHALL MEET THE REQUIREMENTS OF SECTION 713 OR SHALL COMPLY WITH SECTION 714.5.1 OR 714.5.2.

**714.5.1 NONCOMBUSTIBLE PENETRATING ITEMS**

NONCOMBUSTIBLE PENETRATING ITEMS THAT CONNECT NOT MORE THAN FIVE STORIES ARE PERMITTED, PROVIDED THAT THE ANNULAR SPACE IS FILLED TO RESIST THE FREE PASSAGE OF FLAME AND THE PRODUCTS OF COMBUSTION WITH AN APPROVED NONCOMBUSTIBLE MATERIAL OR WITH A FILL, VOID OR CAVITY MATERIAL THAT IS TESTED AND CLASSIFIED FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEMS.

**714.5.2 PENETRATING ITEMS**

PENETRATING ITEMS THAT CONNECT NOT MORE THAN TWO STORIES ARE PERMITTED, PROVIDED THAT THE ANNULAR SPACE IS FILLED WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND THE PRODUCTS OF COMBUSTION.

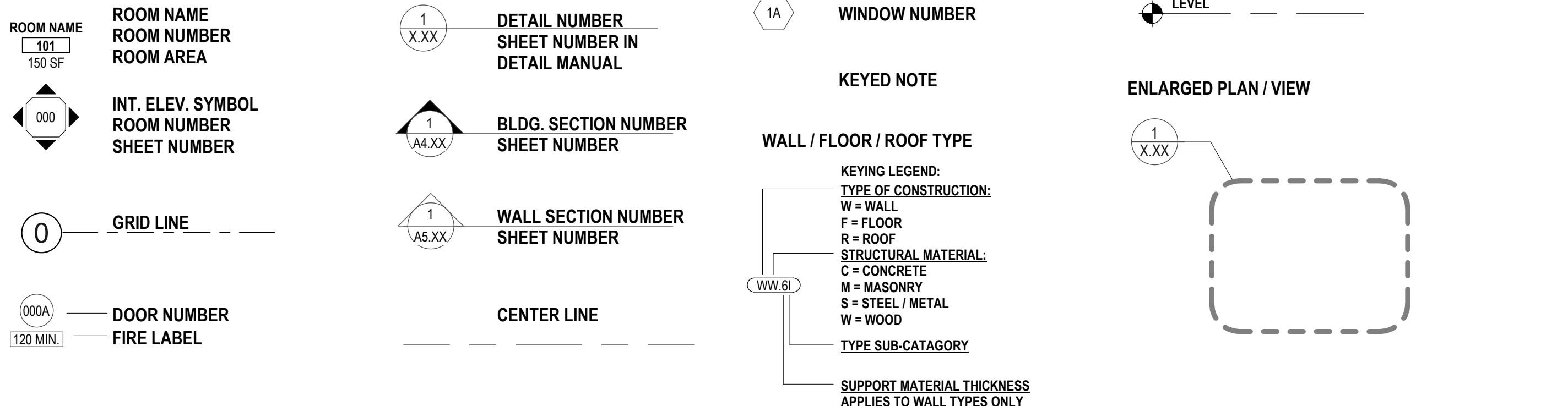
**ABBREVIATIONS**

SCALE: 1/2" = 1'-0"

<b>A</b>	AB ANCHOR BOLT AC ACUSTICAL ACC ACCESSIBLE ADD ADDITIVE ADJ ADJUSTABLE ADMIN ADMINISTRATION OR ADMINISTRATIVE ADR AREA DRAIN AFF ABOVE FINISH FLOOR AG AGGREGATE AGG AGGREGATE ALT ALTERNATE ALUM ALUMINUM ANOD ANODIZED AP ACCESS PANEL APPROX APPROXIMATE ARCH ARCHITECT (URAL) ASPH ASPHALT ASST ASSISTANT AT ACUSTICAL TILE NRC .85 AV AUDIO VISUAL AWP ACUSTICAL WALL PANEL	<b>E</b>	E EAST EA EACH EC ELECTRICAL CONTRACTOR EFM ENTRY FLOOR MAT EJ EXPANSION JOINT EL ELEVATION ELEC ELECTRICAL ELEV ELEVATION OR ELEVATOR ENAM ENAMEL EP ELECTRICAL PANEL EPT EPOXY PAINT EQ EQUAL EQUIP EQUIPMENT ES EACH SIDE EW EACH WAY EX EXISTING TO REMAIN EXP EXPOSED EXT EXTERIOR EIFS EXTERIOR INSUL. & FINISH SYSTEM	<b>L</b>	LAM LAMINATE LAV LAVATORY LBS POUND OR LAG BOLT LBS POUNDS LG2 LAMINATED - CLEAR SAFETY GLASS 1/2" THICK LG4 LAMINATED - CLEAR SAFETY GLASS 1/4" THICK LH LEFT HAND LT LIGHT LVR LOUVER  <b>M</b> MANUF MANUFACTURED MAT MATERIAL MAX MAXIMUM MB MACHINE BOLT MDO MEDIUM DENSITY OVERLAY MIE MECHANICAL/ELECTRICAL MECH MECHANICAL MED MEDIUM MEMB MEMBRANE MFG MANUFACTURING MFR MANUFACTURER MH MANHOLE MI MIRROR MIN MINIMUM MISC MISCELLANEOUS MO MASONRY OPENING MTL/MET METAL  <b>N</b> N NORTH NIC NOT IN CONTRACT NO, OR # NUMBER NOM NOMINAL NTS NOT TO SCALE  <b>O</b> OA OVERALL OC ON CENTER OD OVERFLOW DRAIN OR OUTSIDE DIAMETER OFCI OFFICER FURNISHED CONTRACTOR INSTALLED OFF OFFICE OFOI OWNER FURNISHED OWNER INSTALLED OPG OPENING OPP OPPOSITE HAND OPR OPPOSITE OWA ONE WAY/ACUSTICAL (TRANSPARENT MIRROR) OVHD OVERHEAD  <b>P</b> PAV PAVERS PB PLASTER BASE PBD PARTICLE BOARD PCC PRECAST CONCRETE PG PLATE GLASS (CLEAR FLOOR GLASS) PL PROPERTY LINE OR PLASTIC LAMINATE PLYWD PLYWOOD  <b>Q</b> Q QUARRY TILE BASE QT QUARRY TILE QTY QUANTITY  <b>R</b> R RADIUS OR RISER RA RETURN AIR RB 4" RUBBER BASE RB6 6" RUBBER BASE RD ROOF DRAIN REF REFERENCE REFL REFLECTED REFER REFRIGERATOR RENF REINFORCING REQD REQUIRED RESIL RESILIENT REV REVISION RM ROOM RO ROUGH OPENING RSV RESILIENT SHEET VINYL RWF RESILIENT WOOD FLOOR  <b>S</b> S SOUTH SAF SELF ADHERING FLASHING SC SOLID CORE SCHSD SCHEDULE SD SOAP DISPENSER OR STORM DRAIN SEAL SEALER SH SAFETY CLOTHES/TOWEL HOOK SHM SECURITY HOLLOW METAL SHEET SIM SIMILAR S & L STAIN & LACQUER SP SPEAKER SPECFS SPECIFICATIONS SQ SQUARE SRV SLIP RESISTANT SHEET VINYL SIS STAINLESS STEEL STD STANDARD STG STORAGE STL STEEL STRUCT STRUCTURAL STRL STRUCTURAL SUSPENDED SV SHEET VINYL S & V STAIN & VARNISH SWF STAGE WOOD FLOOR SYSTEM SYM SYMMETRICAL SYSTEM  <b>T</b> T TREAD OR TOP TKBD TACKBOARD TC TOP OF CURB TEL TELEPHONE T & G TONGUE & GROOVE TKG TEMPERED - CLEAR FLOOR GLASS THK THICK TOB TOP OF BEAM TOC TOP OF CONCRETE OR TOP OF COLUMN TOP TOP OF PARAPET TOP TOP OF PLATE TP TOP OF PAVEMENT TPD TOILET PAPER DISPENSER TRANSP TRANSPARENT TRANSV TRANSVERSE T & G TONGUE & GROOVE TSCD TOILET SEAT COVER DISPENSER TSL TOP OF SLAB TV TELEVISION TW TOP OF WALL TYP TYPICAL  <b>U</b> UNFIN UNFINISHED UNON UNLESS OTHERWISE NOTED UR URINAL  <b>V</b> VCT VINYL COMPOSITION TILE VB VAPOR BARRIER VBT VERTICAL VST VESTIBLE VFB VINYL FABRIC VFP VINYL FACED GWB PANELS VGR VERTICAL GRAIN VIF VERTICAL IN FIELD VIN VINYL VNR VENEER VP VENEER PLASTER VW VINYL WALL COVERING  <b>W</b> W WEST, WIDE OR WIDTH W WITH WB WOOD BASE WC WATER CLOSET WD WOOD WDW WINDOW WDF WIDE FLANGE WFS WOOD FLOORING SYSTEM WG WIRE GLASS WM WALK OFF MAT W/O WITHOUT WP WATERPROOF(ING) WR WATER RESISTANT WRB WRITING BOARD WSCT WANSNOT WT WEIGHT WWF WELD WIRE FABRIC
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**TYPICAL SYMBOLS**

SCALE: 1/2" = 1'-0"



09/02/2020



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**PERLMAN ARCHITECTS**  
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**RICHLAND FIRE STATION 75**  
**RICHLAND FIRE STATION**  
**RICHLAND, WA 99354**  
**ABBREVIATIONS AND SYMBOLS**

PROJECT NO. 2006  
DESIGNED BY MV KP  
DRAWN BY RM  
ISSUE DATE 09/02/2020  
PHASE PERMIT SET  
CHECKED BY RJ  
REVISION  
SHEET NO.

**A0.01**



09/02/2020

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**CODE ANALYSIS LEGEND  
 IBC 2015**

- B OCC** — OCCUPANCY GROUP (IBC 2015)  
 15,672 SF — AREA (SQUARE FEET)
- REQ. OPENING WIDTH → EXIT: EXITING WIDTH AND DIRECTION  
 00' X 20' = 00' OPNG. PROVIDED
- REQ. CORRIDOR WIDTH → CORRIDOR: 44" MINIMUM PER IBC TABLE 1020.2  
 00' X 20' = 00' PROVIDED
- # → = NUMBER OF OCCUPANTS EXITING THROUGH DOOR  
 # → = TOTAL NUMBER OF OCCUPANTS EXITING INTO ADJOINING ROOM OR AREA  
 # → = TOTAL NUMBER OF OCCUPANTS EXITING THROUGH DESIGNATED EXTERIOR EXITING DOOR
- # → = NUMBER DOES NOT COUNT TOWARD OCC LOAD
- ⊗ = EXIT SIGN LOCATION SEE DETAIL 10.001  
 ⊕ = FIRE EXTINGUISHER LOCATION  
 ⊕ = BRAILLE EXIT SIGN LOCATION PER IBC 1013.4
- ⊕ = KNOX BOX - VERIFY BOX TYPE & LOCATION w/ FIRE DEPARTMENT - MOUNT 5 TO 6 FEET ABOVE GRADE
- = 1-HOUR FIRE PARTITION
- 250' → 1017.2 MAXIMUM TRAVEL DISTANCE: 250'  
 100' → 1006.2.1 MAXIMUM COMMON PATH OF EGRESS TRAVEL: 100'

**CODE ANALYSIS**

**BUILDING AREAS:**  
 ALL

**OCCUPANCY:**  
 MIXED B, R-3 & S-1, NON-SEPARATED USE

B OCC = 36,000 SQFT SINGLE STORY ALLOWABLE  
 R-3 OCC = UNLIMITED SQFT SINGLE STORY ALLOWABLE  
 S-1 OCC = 36,000 SQFT SINGLE STORY ALLOWABLE  
 B MOST RESTRICTIVE

**OCCUPANT LOAD:**  
 B-OCC = 100 GROSS (FACTOR) = 42 PEOPLE  
 = 4 ACTUAL - ONE PERSON PER DORM ROOM  
 R-3 OCC = 300 GROSS (FACTOR) = 19 PEOPLE  
 S-1 OCC = 19 PEOPLE  
 TOTAL OCCUPANT LOAD: 65 PEOPLE

**CONSTRUCTION TYPE:**  
 V-B, FULLY SPRINKLE; B GOVERNS

**FIRE RESISTANCE RATING REQUIREMENTS:**  
 TABLE 601 BUILDING ELEMENTS: NR  
 TABLE 602 EXTERIOR WALLS: 5" - 0" ≤ 1 HOUR < 10' - 0"

**OPENINGS IN EXTERIOR WALLS:**  
 TABLE 705.8: WORST CASE: NO LIMIT > 20'-0"

ALLOWABLE HEIGHT:	ALLOWABLE	ACTUAL
TABLE 504.3 HEIGHT IN FEET	60' - 0"	24' - 0"
TABLE 504.4 NUMBER OF STORIES	3	1

ALLOWABLE BUILDING AREA	PER STORY	MULTI-STORY
B MOST RESTRICTIVE		
TABLE 506.2 BASIC:	36,000 SF	N/A

IBC TABLE 506.3 FRONTAGE INCREASE  
 NO FRONTAGE INCREASE CONSIDERED

IBC TABLE 506.2 ALLOWABLE AREA INCREASE  
 NO AREA INCREASE CONSIDERED

**ACTUAL BUILDING AREA**

BASEMENT	N/A
1ST FLOOR	10,345 S.F.
2ND FLOOR	N/A
OUTDOOR COVERED AREA	975 S.F.
TOTAL (FIRE AREA)	11,320 S.F.

**REQUIRED FIRE FLOW - IFC 2015:**  
 TABLE B105.1(2) 3,000 GPM 3 HOURS DURATION  
 TABLE 105.2: 3,000 GPM x .25 = 750 GPM MIN  
 NOTE: THE REDUCED FIRE-FLOW SHALL BE NOT LESS THAN 1,000 GPM

**PLUMBING FIXTURE ANALYSIS**

R-3 OCCUPANCY	REQUIRED	PROVIDED
4 MEN/WOMEN	1	4
WATER CLOSETS	1:10 = 1	1
LAVATORIES	1:10 = 1	1
TUBS / SHOWERS	1:8 = 1	1

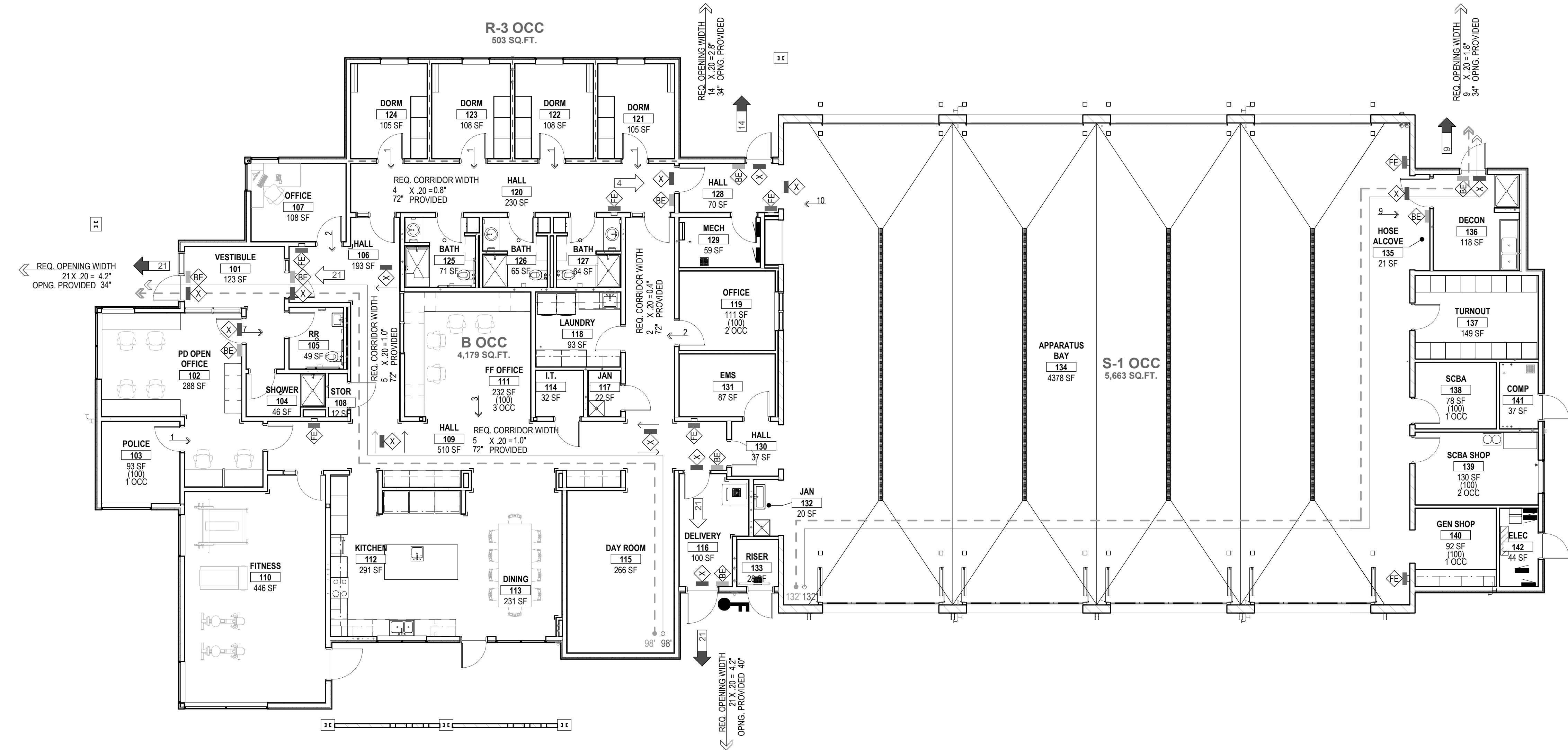
B OCCUPANCY	REQUIRED	PROVIDED
MALE		
WATER CLOSETS	1	2
URINALS	1	0
LAVATORIES	1	2
FEMALE		
WATER CLOSETS	1	2
LAVATORIES	1	2

S-1 OCCUPANCY	REQUIRED	PROVIDED
MALE - 10		
WATER CLOSETS	1	2
URINALS	0	0
LAVATORIES	1	1
FEMALE - 9		
WATER CLOSETS	1	2
LAVATORIES	1	1

DRINKING FOUNTAIN: 1/100 N/A CUPS PROVIDED IN KITCHEN

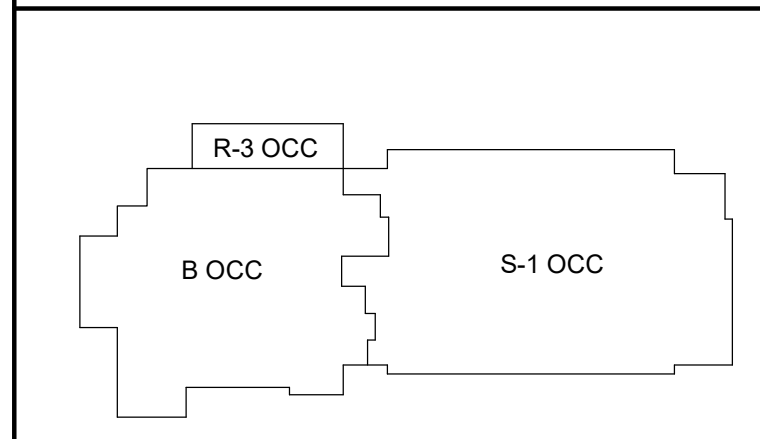
MOP SINK:	REQUIRED	PROVIDED
	1	2

BUILDING AREA: 10,345 S.F.  
 OUTDOOR COVERED AREA: 975 S.F.  
 TOTAL AREA: 11,320 S.F.



**CODE PLAN**  
 SCALE: 1/8" = 1'-0"

**OCCUPANCY TYPE LEGEND**



**RICHLAND FIRE STATION 75**  
**RICHLAND FIRE STATION**  
**RICHLAND, WA 99354**

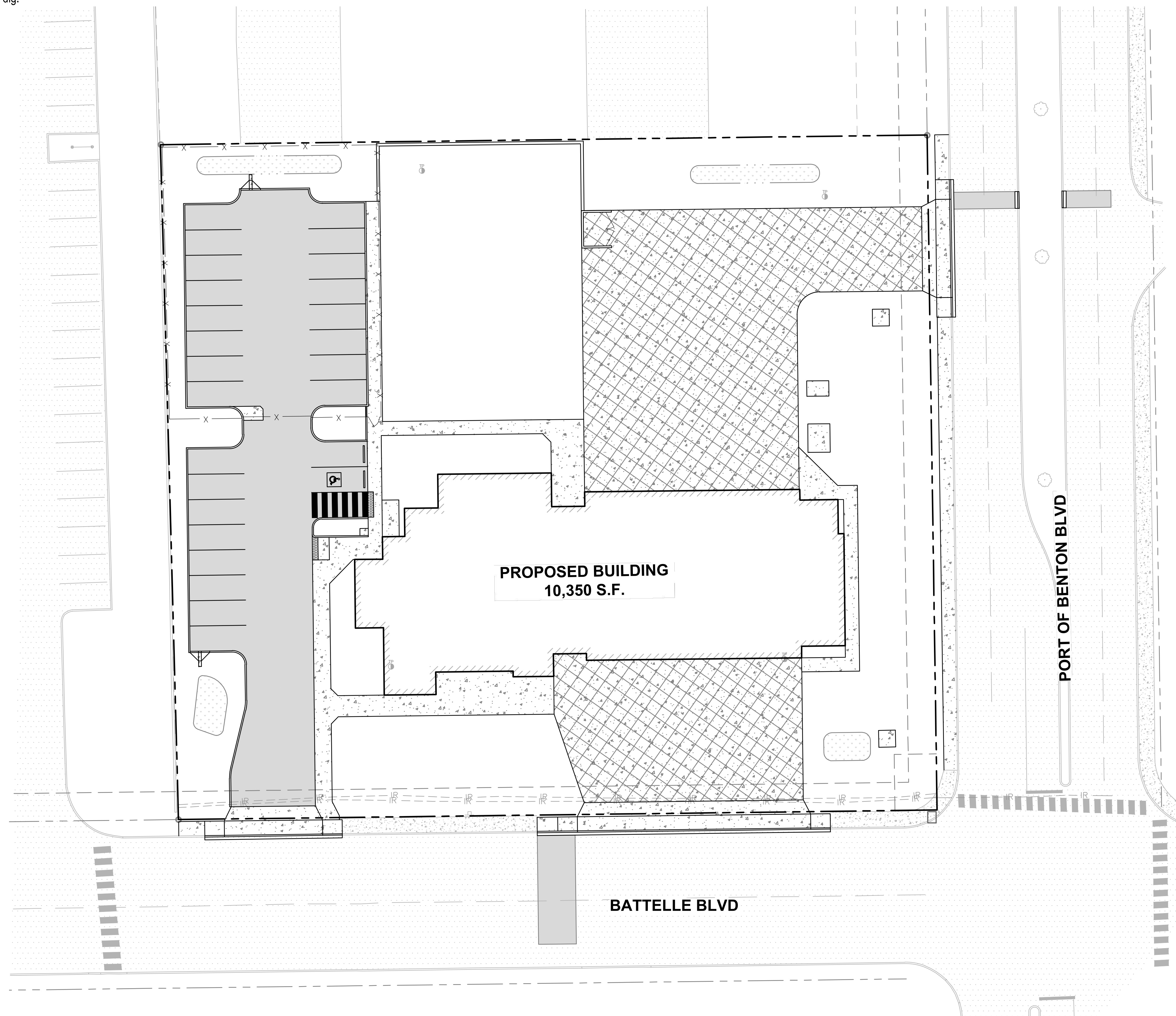
**CODE ANALYSIS**

PROJECT NO. 20006  
 DESIGNED BY MV KP  
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 ISSUE DATE 09/02/2020  
 PHASE PERMIT SET  
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 REVISION  
 SHEET NO.

**A1.01**



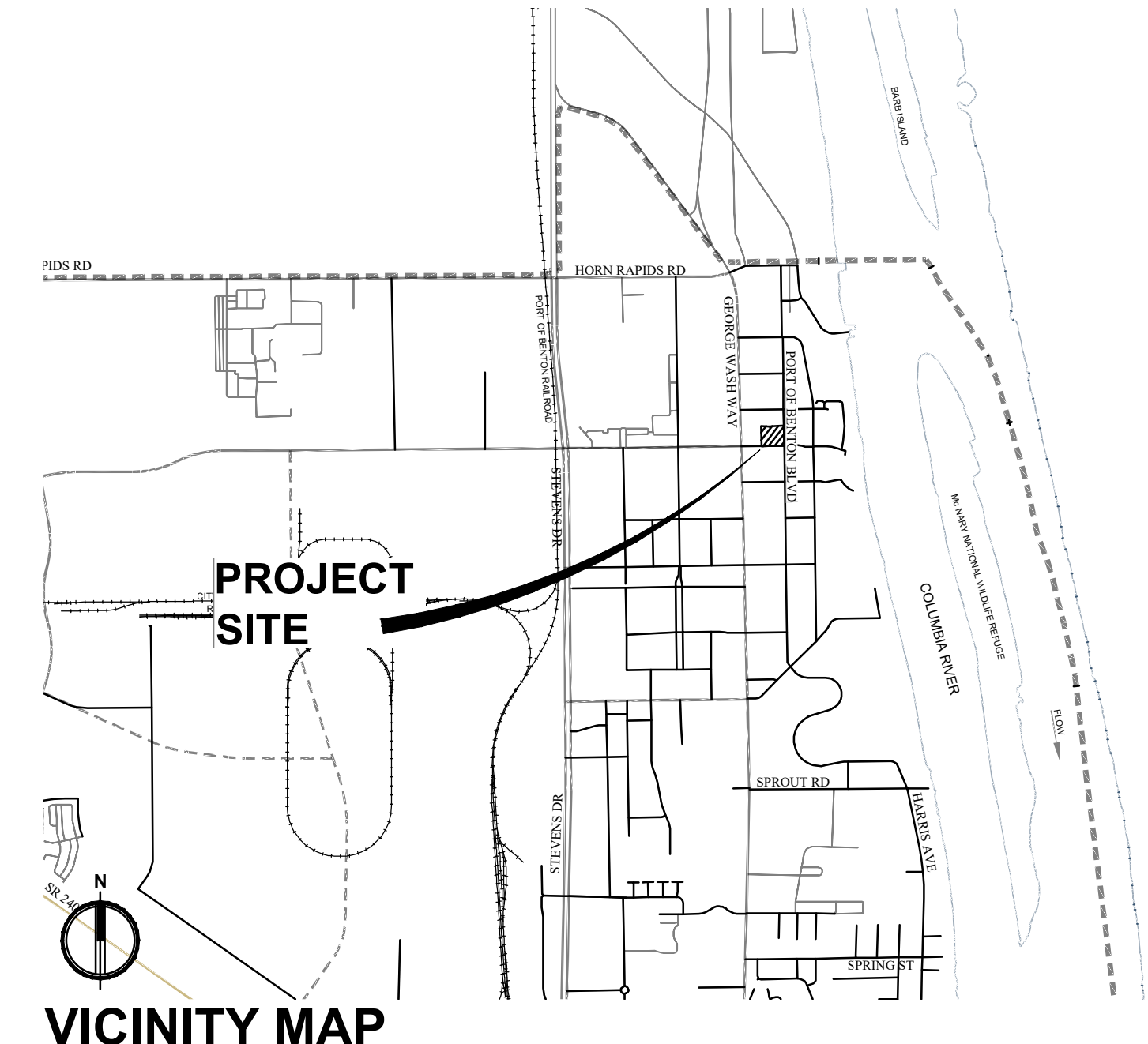
Know what's below.  
Call before you dig.



**PROPOSED BUILDING**  
10,350 S.F.

**BATTELLE BLVD**

**PORT OF BENTON BLVD**



**VICINITY MAP**  
NOT TO SCALE

**OWNER**

CITY OF RICHLAND  
625 SWIFT BLVD  
RICHLAND, WA 99352

**ARCHITECT**

ARCHITECTS WEST  
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CONTACT: ANDREW ABRAMS, PE

**SITE ADDRESS**

UNDETERMINED  
RICHLAND, WA 99352

**PARCEL NO.**

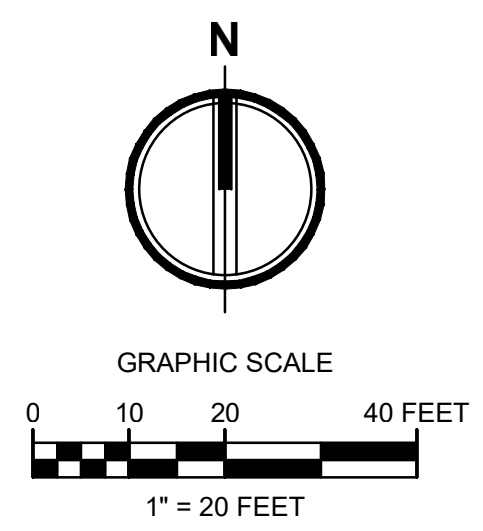
114-084-0135-86003

**UTILITIES**

WATER: CITY OF RICHLAND  
SEWER: CITY OF RICHLAND  
POWER: RICHLAND ENERGY SERVICES  
GAS: CASCADE NATURAL GAS  
PHONE: CHARTER

IMPERVIOUS SURFACING AREA	
PARCEL AREA	65,343 SF
BUILDING AREA	10,362 SF
ASPHALT AREA	10,275 SF
SIDEWALK AREA	19,530 SF
LANDSCAPE AREA	28,000 SF

CIVIL SHEET INDEX	
SHEET NUMBER	SHEET TITLE
C100	CIVIL COVER
C101	GENERAL NOTES
C102	TOPOGRAPHIC SURVEY
C200	TESC & DEMOLITION
C201	TESC & DEMOLITION NOTES
C300	CIVIL SITE PLAN
C301	CIVIL SITE DETAILS
C400	GRADING & DRAINAGE PLAN
C401	GRADING & DRAINAGE DETAILS
C500	UTILITY PLAN
C501	SEWER MAIN PLAN & PROFILE



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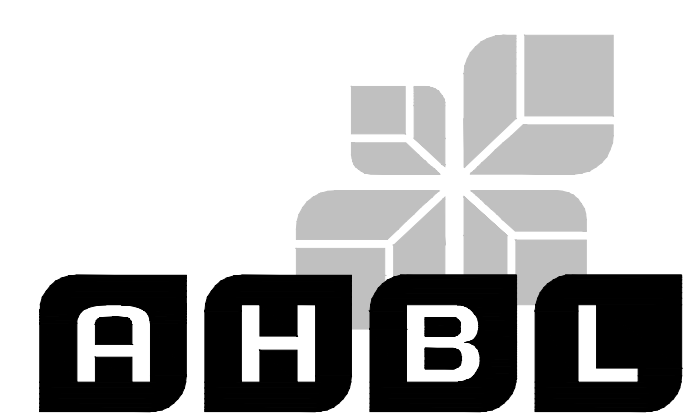
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Landscape  
**ARCHITECTS WEST**  
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208.667.9402

**CITY OF RICHLAND**  
**RICHLAND FIRE STATION 75**  
**RICHLAND, WA 99352**

CIVIL COVER



PROJECT NO. 20006  
DESIGNED BY KDM  
DRAWN BY KDM  
ISSUE DATE 09/02/2020  
PHASE PERMIT SET  
CHECKED BY EMF  
REVISION  
SHEET NO.

**C100**



Know what's below.  
Call before you dig.

### LEGEND

EXISTING		PROPOSED
△	SET NAIL AND WASHER	
○	BOLLARD	
□	MAIL BOX	
○	SIGN	
○	SANITARY SEWER MANHOLE	●
○	SANITARY SEWER CLEANOUT	●
□	STORM CATCH BASIN	■
⊕	STORM MANHOLE	⊕
●	ROOF DRAIN	
	DRYWELL	⊗
△	POWER TRANSFORMER	
○	UTILITY POWER POLE	
P	ELECTRICAL VAULT	
X	LUMINAIRE	
⊕	COMMUNICATIONS MANHOLE	
⊕	FIRE HYDRANT	⊕
⊕	IRRIGATION CONTROL VALVE	⊕
⊕	WATER METER	⊕
⊕	WATER VALVE	⊕
---	STORM LINE	---
---	SANITARY SEWER LINE	---
---	GAS LINE	---
---	ELECTRICAL LINE	---
---	COMMUNICATIONS LINE	---
---	WATER LINE	---
█	CONCRETE	█
█	ASPHALT	█
	GRAVEL	
---	CONTOUR MAJOR INTERVAL	---
---	CONTOUR MINOR INTERVAL	---

### CONSTRUCTION SEQUENCE

1. FLAG CLEARING LIMITS.
2. SCHEDULE AND ATTEND PRECONSTRUCTION MEETING WITH THE CITY OF RICHLAND.
3. PROVIDE MISC. DEMOLITION AND CLEAR AND GRUB AREA WITHIN CLEARING LIMITS REQUIRED FOR INSTALLATION OF TEMPORARY EROSION CONTROL FACILITIES. ALL EROSION AND SEDIMENT CONTROL FACILITIES SHOWN ON THE EROSION CONTROL PLAN SHALL BE INSTALLED PRIOR TO, OR AS A FIRST STAGE OF SITE PREPARATION.
4. PROVIDE INLET PROTECTION AND FILTER FABRIC FENCE AS SHOWN.
5. THE CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AND PROVIDE REPAIRS AS NEEDED.
6. CLEAR AND GRUB THE REMAINDER OF THE SITE WITHIN CLEARING LIMITS AND ROUGH GRADE.
7. PROVIDE COVER MEASURES TO INCLUDE ARMORING, MULCHING AND HYDROSEEDING TO STABILIZE DENUDED AREAS AND PREVENT THE TRANSPORT OF SEDIMENT-LADEN STORMWATER OFF-SITE.
8. PROVIDE STORM SYSTEM AND MISCELLANEOUS UTILITIES AS SHOWN ON THE PLANS. PROVIDE 6" VERTICAL AND 3' HORIZONTAL CLEARANCE (OUTSIDE SURFACES) BETWEEN STORM DRAIN LINES AND OTHER UTILITY PIPES AND CONDUITS PROVIDED. PROVIDE INLET PROTECTION ON ALL NEW CATCH BASINS AND DRYWELLS.
9. FINE GRADE SITE AND PAVE. COORDINATE WITH THE CITY OF RICHLAND FOR REQUIRED INSPECTIONS.
10. STABILIZE ALL REMAINING DISTURBED AREAS.

### TOPOGRAPHIC NOTE

THE EXISTING CULTURAL AND TOPOGRAPHIC DATA SHOWN ON THESE DRAWINGS HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, AHBL CANNOT ENSURE ACCURACY AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THAT INFORMATION OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THESE DRAWINGS AS A RESULT.

### FILL SPECIFICATION

IMPORTED FILL MATERIAL SHALL NOT CONTAIN PETROLEUM PRODUCTS, OR SUBSTANCES WHICH ARE HAZARDOUS, DANGEROUS, TOXIC, OR WHICH OTHERWISE VIOLATE ANY STATE, FEDERAL, OR LOCAL LAW, ORDINANCE, CODE, REGULATION, RULE, ORDER, OR STANDARD.

### TRENCH NOTE

IF WORKERS ENTER ANY TRENCH OR OTHER EXCAVATION FOUR OR MORE FEET IN DEPTH THAT DOES NOT MEET THE OPEN PIT REQUIREMENTS OF WSDOT SECTION 2-09.3(3)B, IT SHALL BE SHORED AND CRIBBED. THE CONTRACTOR ALONE SHALL BE RESPONSIBLE FOR WORKER SAFETY AND AHBL ASSUMES NO RESPONSIBILITY. ALL TRENCH SAFETY SYSTEMS SHALL MEET THE REQUIREMENTS OF THE WASHINGTON INDUSTRIAL SAFETY AND HEALTH ACT, CHAPTER 49.17 RCW.

### GENERAL PROJECT NOTES

1. AFTER COMPLETION OF ALL ITEMS SHOWN ON THESE PLANS AND BEFORE ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL OBTAIN A "PUNCH LIST" PREPARED BY ENGINEER DETAILING REMAINING ITEMS OF WORK TO BE COMPLETED. ALL ITEMS OF WORK SHOWN ON THESE PLANS SHALL BE COMPLETED TO THE SATISFACTION OF THE ENGINEER PRIOR TO ACCEPTANCE OF THE PROJECT.
2. A COPY OF THESE APPROVED PLANS, SPECIFICATIONS, AND DETAILS SHALL BE ON SITE DURING CONSTRUCTION.
3. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE TRUE ELEVATIONS AND LOCATIONS OF HIDDEN UTILITIES. ALL VISIBLE ITEMS SHALL BE THE ENGINEER'S RESPONSIBILITY.
4. THE CONTRACTOR SHALL INSTALL, REPLACE, OR RELOCATE ALL SIGNS, AS SHOWN IN THE PLANS OR AS AFFECTED BY CONSTRUCTION.
5. DURING CONSTRUCTION, ALL PUBLIC STREETS ADJACENT TO THIS PROJECT SHALL BE KEPT CLEAN OF ALL MATERIAL DEPOSITS RESULTING FROM ON-SITE CONSTRUCTION, AND EXISTING STRUCTURES SHALL BE PROTECTED AS DIRECTED BY THE CITY.
6. CONTRACTOR TO DOCUMENT REVISIONS DURING CONSTRUCTION ON A SET OF PLANS AND SUBMIT MARKUPS TO AHBL PRIOR TO PROJECT ACCEPTANCE.
7. IF ADEQUATE INSPECTION IS NOT COMPLETED AND DOCUMENTED BEFORE COMPLETION OF THE ROADWAY CONSTRUCTION, IT MAY BE NECESSARY FOR CORE DRILLING AND TESTING TO BE PERFORMED TO ASSURE AN ACCEPTABLE QUALITY ROADWAY. WHEN CORE DRILLING IS FOUND TO BE NECESSARY, THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL COSTS INCURRED.
8. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES IN ORDER TO ASSURE THAT ALL LINES, PIPES, POLES AND OTHER APPURTENANCES ARE PROPERLY LOCATED AND THEIR INSTALLATION IS COORDINATED WITH THE ROAD CONSTRUCTION. ALL UTILITY RELOCATION WORK SHALL BE AT THE EXPENSE OF THE CONTRACTOR.
9. BURIED UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL HAVE UTILITIES VERIFIED ON THE GROUND PRIOR TO ANY CONSTRUCTION. CALL 811 OR 1-800-424-5555 (CALL BEFORE YOU DIG HOTLINE) AT LEAST 48 HOURS IN ADVANCE. THE APPLICANT AND APPLICANT'S ENGINEER SHALL BE CONTACTED IMMEDIATELY IF A CONFLICT EXISTS.
10. THE CONTRACTOR IS RESPONSIBLE TO PROTECT EXISTING UTILITIES. ALL UTILITIES ARE TO BE PROTECTED UNLESS OTHERWISE NOTED. CONTRACTOR IS RESPONSIBLE FOR REPAIR OF ANY UTILITIES DAMAGED DURING CONSTRUCTION.
9. ONSITE EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IN PLACE PRIOR TO CONSTRUCTION.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARING, HAULING, AND DISPOSING OF ANY UNSUITABLE MATERIAL IN A LEGAL MANNER. THIS MATERIAL SHALL NOT BE USED AS FILL.
11. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF WASHINGTON, DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND CITY OF RICHLAND STANDARDS.
12. ALL BACKFILL AND EMBANKMENT SHALL BE COMPACTED PER THE GEOTECHNICAL REPORT RECOMMENDATIONS.
13. WHERE NEWLY CONSTRUCTED PAVING MEETS EXISTING PAVING, THE CONTRACTOR SHALL SAW CUT AND OVERLAY AND FEATHER NEW PAVEMENT TO PROVIDE A SMOOTH TRANSITION FROM EXISTING TO PROPOSED PAVING. APPLICATION OF A THIN TACK COAT OF EMULSIFIED ASPHALT SHALL BE APPLIED TO INSURE PROPER BONDING.
14. THE COMPLETE SURFACE OF ALL COURSES SHALL BE OF UNIFORM TEXTURE, SMOOTH, UNIFORM AS TO CROWN AND GRADE, AND FREE FROM DEFECTS OF ALL KINDS. THE COMPLETED SURFACE OF THE WEARING COURSE SHALL NOT VARY MORE THAN 1/8 INCH FROM THE LOWER EDGE OF A 10 FOOT STRAIGHTEDGE PLACED ON THE SURFACE PARALLEL TO THE CENTERLINE. THE TRANSVERSE SLOPE OF THE COMPLETED SURFACE OF THE WEARING COURSE SHALL VARY NOT MORE THAN 1/4 INCH IN 10 FEET FROM THE RATE OF TRANSVERSE SLOPE SHOWN ON THE PLANS.
15. IF THE CONTRACTOR DISCOVERS ANY DISCREPANCIES BETWEEN THE PLANS AND EXISTING CONDITIONS ENCOUNTERED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE DESIGN ENGINEER.
16. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNATING A LOCATION FOR CONCRETE TRUCK AND EQUIPMENT WASHOUT. THIS AREA SHALL NOT BE LOCATED NEAR, OR DRAIN INTO, A STORM DRAINAGE AREA, A TREATMENT AREA, OR A STORMWATER FACILITY.

### CITY OF RICHLAND STANDARD NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE CITY OF RICHLAND STANDARD SPECIFICATIONS AND DETAILS AND THE CURRENT EDITION OF THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION. PLEASE CONFIRM THAT YOU HAVE THE LATEST SET OF STANDARD SPECS AND DETAILS BY VISITING THE CITY'S WEB PAGE.
2. ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY, UTILITY EASEMENT, OR INVOLVING THE CONSTRUCTION OF PUBLIC INFRASTRUCTURE WILL REQUIRE THE APPLICANT TO OBTAIN A RIGHT-OF-WAY PERMIT PRIOR TO CONSTRUCTION. A PLAN REVIEW AND INSPECTION FEE IN THE AMOUNT EQUAL TO 5% OF THE CONSTRUCTION COSTS OF THE WORK THAT WILL BE ACCEPTED AS PUBLIC INFRASTRUCTURE OR IS WITHIN THE RIGHT-OF-WAY OR EASEMENT WILL BE COLLECTED AT THE TIME THE PERMIT IS ISSUED. A STAMPED, ITEMIZED ENGINEER'S ESTIMATE (OPINION OF PROBABLE COST) SHALL BE USED TO CALCULATE THE 5% FEE.
3. ONCE THE PLANS HAVE BEEN ACCEPTED BY THIS DEPARTMENT, A PRE-CONSTRUCTION CONFERENCE WILL BE REQUIRED PRIOR TO THE START OF ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY OR EASEMENT. CONTACT THE CIVIL AND UTILITY ENGINEERING DIVISION AT 942-7500 OR 942-7742 TO SCHEDULE A PRE-CONSTRUCTION CONFERENCE.
4. WHEN THE CONSTRUCTION IS SUBSTANTIALLY COMPLETE A PAPER SET OF "RECORD DRAWINGS" SHALL BE PREPARED BY A LICENSED SURVEYOR AND INCLUDE ALL CHANGES AND DEVIATIONS. PLEASE REFERENCE THE PUBLIC WORKS DOCUMENT "RECORD DRAWING REQUIREMENTS & PROCEDURES" FOR A COMPLETE DESCRIPTION OF THE RECORD DRAWING PROCESS. AFTER APPROVAL BY THE CITY OF THE PAPER COPY, A MYLAR COPY OF THE RECORD DRAWINGS SHALL BE SUBMITTED ALONG WITH A CAD COPY OF THEM.
5. NO WORK ON THIS PROJECT SHALL COMMENCE UNTIL A CITY OF RICHLAND RIGHT-OF-WAY CONSTRUCTION PERMIT HAS BEEN ISSUED.
6. ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS."
7. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL BE LICENSED BY THE STATE OF WASHINGTON AND BONDED TO DO WORK IN THE PUBLIC RIGHT-OF-WAY.
8. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL HAVE A CURRENT CITY OF RICHLAND BUSINESS LICENSE.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CONSTRUCTION DEFICIENCIES FOR A PERIOD OF ONE-YEAR FROM THE DATE OF ACCEPTANCE BY THE CITY OF RICHLAND.
10. THE CONTRACTOR SHALL BE REQUIRED TO CALL 1-800-424-5555 OR "811" A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCING ANY EXCAVATION ACTIVITIES TO DETERMINE FIELD LOCATIONS OF ALL UNDERGROUND UTILITIES.
11. ANY CHANGES OR MODIFICATIONS TO THE PROJECT PLANS SHALL FIRST BE APPROVED BY THE CITY ENGINEER OR HIS REPRESENTATIVE.
12. THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED WITH THE FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
13. THE FACE OF CURB SHALL BE STAMPED AT ALL UTILITY CROSSINGS, MAIN LINES AND SERVICE LINES AS FOLLOWS:  
 "S" - SANITARY SEWER  
 "I" - IRRIGATION  
 "G" - GAS  
 "W" - WATER  
 "C" - CONDUITS  
 "D" - STORM DRAIN
14. ALL FIRE HYDRANTS AND GUARD POSTS SHALL BE PAINTED OSHA SAFETY YELLOW, QUICKSET ENAMEL NO. 3472 HYDRANT YELLOW AS MANUFACTURED BY FARWEST PAINT MANUFACTURING COMPANY OR APPROVED EQUAL.
15. FIRE HYDRANTS AND STREET LIGHTS SHALL BE INSTALLED AT 2-FEET BEHIND THE BACK OF SIDEWALK TO THE FACE OF EQUIPMENT WHERE THE SIDEWALK IS ADJACENT TO THE CURB AND 6-FEET BEHIND THE BACK OF CURB WHERE THE SIDEWALK IS NOT ADJACENT TO THE CURB UNLESS OTHERWISE NOTED ON THE PLANS.
16. ANY DAMAGED OR BADLY DETERIORATED CONCRETE CURB, GUTTER AND SIDEWALK WITHIN PUBLIC RIGHT OF WAY SHALL BE REMOVED AND REPLACED. THIS INCLUDES ANY CURB DAMAGED BY CONSTRUCTION EQUIPMENT DURING THE PROJECT.
17. 2-INCHES OF CRUSHED GRAVEL SHALL BE PLACED AND COMPACTED BENEATH ALL SIDEWALKS PRIOR TO PLACEMENT OF CONCRETE.
18. ALL STORM DRAINAGE MANHOLES WITH A GRATED LID SHALL BE CONSTRUCTED WITH A "SUMP" IN THE BOTTOM OF THEM, IN ACCORDANCE WITH THE STANDARD DETAILS.
19. IRRIGATION VALVE BOXES OR LIDS WITHIN THE ROADWAY OR PUBLIC RIGHT-OF-WAY NEED TO BE PER CITY OF RICHLAND SPEC: "RICH 931" CAST IRON LID SHALL HAVE "IRR" CAST INTO TOP.
20. A MINIMUM HORIZONTAL SEPARATION OF TEN-FEET SHALL BE MAINTAINED BETWEEN WATER MAINS AND SEWER MAINS AND SERVICE LINES. WATER MAINS SHOULD CROSS OVER THE TOP OF SEWER MAINS WITH A MINIMUM VERTICAL SEPARATION OF 18-INCHES. ANY CROSSING WITH A VERTICAL SEPARATION OF LESS THAN 18" OR ANY CROSSING IN WHICH THE WATER MAIN CROSSES BELOW THE SEWER MAIN SHALL BE IN ACCORDANCE WITH WASHINGTON STATE DEPARTMENT OF ECOLOGY STANDARDS. PRESSURIZED SEWER MAINS SHALL NOT CROSS OVER POTABLE WATER MAINS IN ANY CASE. IF A MINIMUM VERTICAL SEPARATION OF 12" CANNOT BE MAINTAINED BETWEEN MAINLINE PIPES, CDF OR CONCRETE SHALL BE USED AS BACKFILL IN PLACE OF NATIVE SOILS OR GRAVEL.
21. RESIDENTIAL SEWER SERVICES SHALL BE 4-INCHES IN DIAMETER AND SHALL EXTEND 10-FEET BEYOND THE RIGHT-OF-WAY INTO THE LOT. THE END SHALL BE MARKED WITH A MARKER POST INSTALLED IN ACCORDANCE WITH CITY STANDARD DETAILS.
22. RESIDENTIAL WATER SERVICES SHALL BE 1-INCH IN DIAMETER AND SHALL EXTEND 1-FOOT BEYOND THE BACK OF SIDEWALK THROUGH THE CURB STOP. THE END SHALL BE MARKED WITH A BLUE MARKER POST INSTALLED IN ACCORDANCE WITH CITY STANDARD DETAILS.
23. THE CONTRACTOR SHALL TAKE ANY NECESSARY MEANS TO KEEP FROM TRACKING MUD AND DEBRIS OUT ONTO THE EXISTING STREETS, AND SHALL ALSO KEEP MUD AND ANY OTHER DEBRIS FROM HIS SITE FROM ENTERING THE EXISTING PUBLIC STORM DRAINAGE SYSTEM.
24. THE CONTRACTOR SHALL SUPPLY A DUST CONTROL PLAN PRIOR TO STARTING WORK IN ACCORDANCE WITH RMC CHAPTER 9.16.04B, SECTION J.
25. ALL DISTURBED AREAS SHALL BE HYDRO-SEEDING AT THE COMPLETION OF THE PROJECT.
26. THE CONTRACTOR SHALL TAKE CARE TO PREVENT CONSTRUCTION SITE RUNOFF FROM THE ENTERING INTO THE CITY'S STORMWATER SYSTEM, IN ACCORDANCE WITH RMC CHAPTER 16.05. CONSTRUCTION MATERIALS THAT MAY INTRODUCE SEDIMENT INTO THE STORMWATER SYSTEM MAY NOT BE STOCKPILED IN THE STREET. SUCH MATERIALS MAY INCLUDE BUT NOT BE LIMITED TO: CONSTRUCTION MATERIALS, SOIL, SAND, GRAVELS, ETC.

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Structural Consultant

Mechanical Consultant

Electrical Consultant

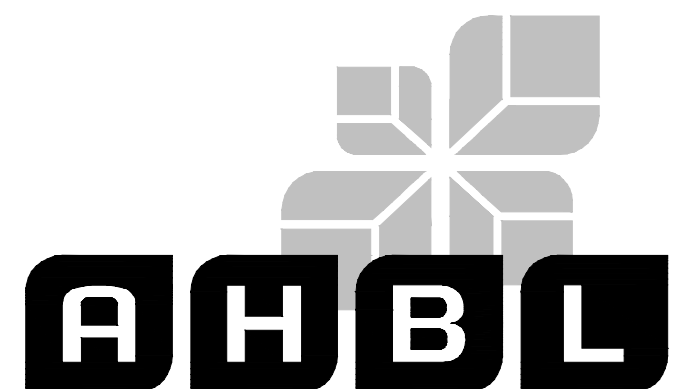
Landscape  
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 208.667.9402

CITY OF RICHLAND  
 RICHLAND FIRE STATION 75  
 RICHLAND, WA 99352

GENERAL NOTES

PROJECT NO.	20006
DESIGNED BY	KDM
DRAWN BY	KDM
ISSUE DATE	09/02/2020
PHASE	PERMIT SET
CHECKED BY	EMF
REVISION	
SHEET NO.	

C101



# CITY OF RICHLAND FIRE STATION NO. 75

## A PORTION OF THE W 1/2 OF THE SE 1/4 OF SEC. 14, TWN. 10 N., RGE. 28 E. W.M.

### CITY OF RICHLAND, BENTON COUNTY, WASHINGTON.

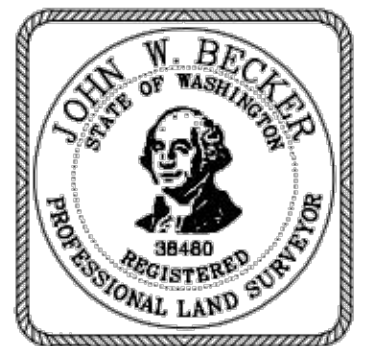


5804 Road 90, Suite H Pasco, WA 99301  
509.380.5883 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:  
**CITY OF RICHLAND  
FIRE STATION NO. 75**

Client:  
**CITY OF RICHLAND**  
625 SWIFT BOULEVARD, MS-6  
RICHLAND, WA 99352  
DARRIN SWEENEY

Job No.  
2200162.50  
Issue Set & Date:  
MARCH 24, 2020



NOTICE  
ALTERATION OF THIS DOCUMENT SHALL INVALIDATE THE PROFESSIONAL SEAL AND SIGNATURE. PUBLICATION OF THIS DOCUMENT DOES NOT CONSTITUTE A WAIVER OF OWNERSHIP RIGHTS BY IT. THIS DOCUMENT IS FOR USE ONLY FOR THE PROJECT DESCRIBED IN THE TITLE BLOCK. IT SHALL BE VOID FOR ANY OTHER PROJECT.

#### LEGAL DESCRIPTION

PER FIRST AMERICAN TITLE INSURANCE COMPANY ORDER NO. 3144841 DATED NOVEMBER 28, 2018  
LOT 3, SHORT PLAT NO. 3586, ACCORDING TO THE SURVEY THEREOF RECORDED UNDER AUDITOR'S FILE NO. 2018-032433, RECORDS OF BENTON COUNTY, WASHINGTON.

#### VERTICAL DATUM

NAVD 88  
CITY OF RICHLAND VERTICAL BENCHMARK 1023  
BRASS DISK AT THE INTERSECTION OF BATTELLE BOULEVARD AND GEORGE WASHINGTON WAY. ALSO BEING THE QUARTER CORNER FOR SEC 14 AND 23 ELEV=409.06

#### BASIS OF BEARING

NAD 83/91  
WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE  
CITY OF RICHLAND HORIZONTAL CONTROL  
MONUMENT NUMBERS 1023 AND 1021.

#### UTILITY NOTES

1. SURFACE UTILITY FACILITIES ARE SHOWN HEREON PER FIELD LOCATED VISIBLE EVIDENCE. THERE MAY BE UTILITIES THAT EXIST ON THIS SITE OTHER THAN THOSE GRAPHICALLY DEPICTED HEREON.
2. UNDERGROUND (BURIED) UTILITIES SHOWN HEREON ARE BASED ON COMBINATIONS OF VISIBLE SURFACE EVIDENCE, UTILITY LOCATOR MARKINGS AND RECORD DATA (SUCH AS AS-BUILT OR UTILITY DESIGN DRAWINGS). ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND, IN SOME CASES, ARE SHOWN AS STRAIGHT LINES BETWEEN FIELD LOCATED SURFACE UTILITY FACILITIES. UNDERGROUND UTILITIES MAY HAVE BENDS, CURVES OR CONNECTIONS WHICH ARE NOT SHOWN.
3. ALTHOUGH LOCATIONS OF UNDERGROUND UTILITIES BASED ON UTILITY LOCATOR MARKINGS AND RECORD DATA (SUCH AS AS-BUILT OR UTILITY DESIGN DRAWINGS) ARE DEEMED RELIABLE, AHBL, INC. ASSUMES NO LIABILITY FOR THE ACCURACY OF SAID DATA.
4. CALL 1-800-424-5555 BEFORE ANY CONSTRUCTION.

#### RELIANCE NOTE

THIS SURVEY WAS PREPARED AT THE REQUEST OF DARRIN SWEENEY FOR THE SOLE AND EXCLUSIVE USE OF THE CITY OF RICHLAND. RIGHTS TO RELY UPON AND, OR USE THIS SURVEY DO NOT EXTEND TO ANY OTHER PARTY EXCEPT THROUGH EXPRESS RECERTIFICATION BY THE PROFESSIONAL LAND SURVEYOR WHOSE STAMP AND SIGNATURE APPEAR HEREON.

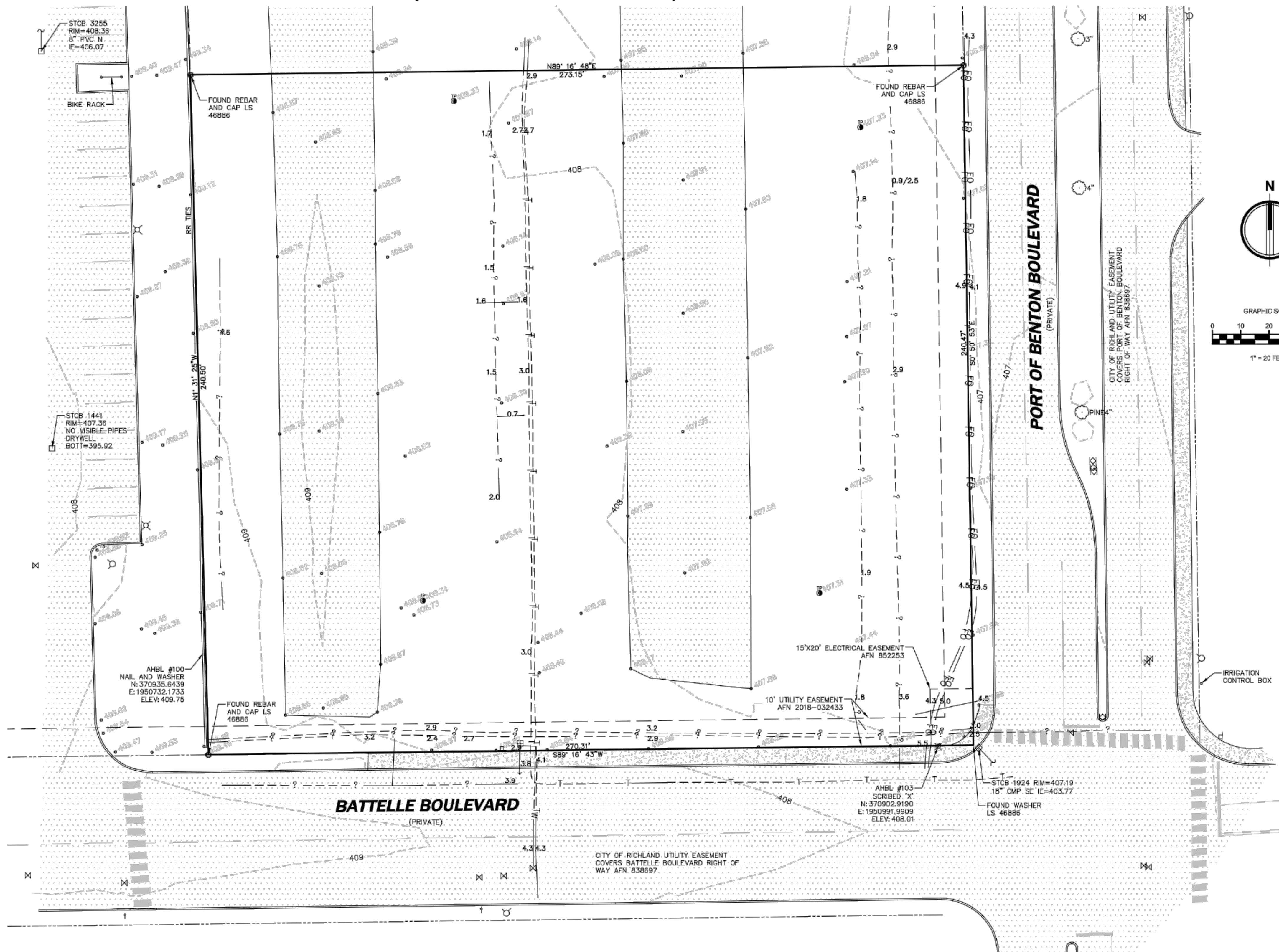
#### EQUIPMENT USED

3" TOTAL STATION UTILIZING STANDARD FIELD TRAVERSE METHODS FOR CONTROL AND STAKING.

#### SURVEYOR'S CERTIFICATE

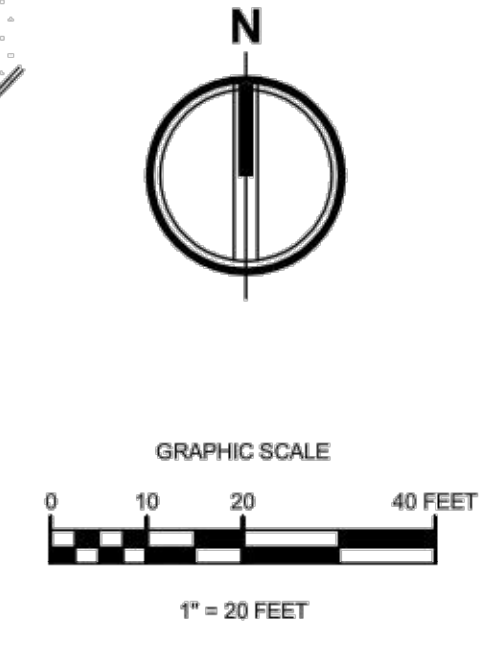
I, JOHN W. BECKER, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF WASHINGTON, HEREBY CERTIFY THAT THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION IN MARCH 2020, AT THE REQUEST OF THE CITY OF RICHLAND.

JOHN W. BECKER, PLS 38480 DATE



#### LEGEND

- |  |                         |  |                        |  |                          |
|--|-------------------------|--|------------------------|--|--------------------------|
|  | QUARTER SECTION CORNER  |  | STORM CATCH BASIN      |  | IRRIGATION CONTROL VALVE |
|  | CENTER SECTION          |  | STORM MANHOLE          |  | WATER METER              |
|  | FOUND MONUMENT AS NOTED |  | CABLE RISER            |  | POST INDICATOR VALVE     |
|  | SET NAIL AND WASHER     |  | GAS METER              |  | WATER VALVE              |
|  | SET REBAR AND CAP       |  | GAS VALVE              |  | WATER VAULT              |
|  | FOUND PROPERTY CORNER   |  | POWER TRANSFORMER      |  | STORM LINE               |
|  | BOLLARD                 |  | JUNCTION BOX           |  | SEWER LINE               |
|  | SIGN AS NOTED           |  | POWER VAULT            |  | WATER LINE               |
|  | UNKNOWN VAULT           |  | LUMINAIRE              |  | GAS LINE                 |
|  | TEST PIT                |  | COMMUNICATIONS MANHOLE |  | ELECTRICAL LINE          |
|  | SANITARY SEWER CLEANOUT |  | TELEPHONE RISER        |  | COMMUNICATION LINE       |
|  | SANITARY SEWER MANHOLE  |  | TELEPHONE VAULT        |  | OVERHEAD UTILITIES       |
|  | STORM CLEANOUT          |  | BLOW OFF VALVE         |  | UNKNOWN UTILITY LOCATE   |
|  |                         |  | FIRE HYDRANT           |  | ASPHALT                  |
|  |                         |  | HOSE BIB               |  | CONCRETE                 |



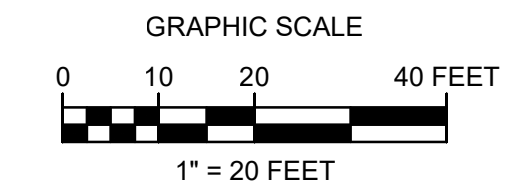
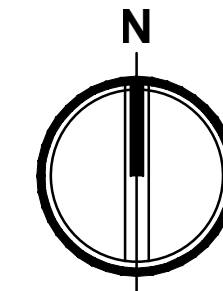
Sheet Title:  
**TOPOGRAPHIC  
SURVEY**

Designed by: Drawn by: Checked by:  
TD JB  
09/02/2020  
PERMIT SET

Sheet No.  
**1**  
1 of 1 Sheets



Know what's below.  
Call before you dig.



### DEMOLITION GENERAL NOTES

- CONTRACTOR SHALL ATTEND A PRECONSTRUCTION CONFERENCE TO REVIEW SCOPE OF WORK.
- CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL UTILITIES HAVE BEEN DISCONNECTED PRIOR TO COMMENCING DEMOLITION.
- DEMOLITION: IT IS THE INTENT OF THE WORK UNDER THIS CONTRACT TO INCLUDE THE DEMOLITION INDICATED BY THIS DRAWINGS AND AS REQUIRED FOR NEW CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FULLY REVIEW THE SITE CONDITIONS AND TO CORRELATE THESE OBSERVATIONS WITH THE PROJECT WORK AND INCLUDE ALL NECESSARY DEMOLITION, WHETHER SHOWN OR NOT, AND INCLUDE ALL SUCH COSTS IN THE BASE BID.
- ANY DAMAGED OR BADLY DETERIORATED CONCRETE CURB, GUTTER AND SIDEWALK WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED AND REPLACED. THIS INCLUDES ANY CURB DAMAGED BY CONSTRUCTION ACTIVITIES DURING THE PROJECT.
- CLEARING: IT IS THE INTENT OF THE WORK UNDER THIS CONTRACT TO CONDUCT ALL CLEARING NECESSARY TO BE ABLE TO COMPLETE ALL THE WORK OF THIS PROJECT.
- CONTRACTOR SHALL LEGALLY DISPOSE OF THE OWNER'S PROPERTY, ALL DEMOLISHED AND REMOVED MATERIALS, UNLESS INDICATED OTHERWISE. THE DISPOSAL SITE FOR ACCEPTABLE WASTE MATERIALS SHALL BE EITHER THE RICHLAND LANDFILL OR A SITE APPROVED BY THE BENTON-FRANKLIN PUBLIC HEALTH DEPARTMENT, IN WRITING.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETELY COORDINATE UTILITY DEMOLITION WITH NEW CONSTRUCTION. CONTRACTOR SHALL ENSURE THAT ADEQUATE FIRE PROTECTION IN ACCORDANCE WITH THE FIRE MARSHAL'S REQUIREMENTS IS PROVIDED.
- COORDINATE POWER DEMOLITION WITH ELECTRICAL JURISDICTION AND ELECTRICAL PLANS. CONTRACTOR TO ENSURE THAT DEMOLITION OF LINES WILL NOT COMPROMISE POWER TO OTHER AREAS.
- THIS PLAN IS USED IN CONJUNCTION WITH THE CSWPPP AND NPDES CONSTRUCTION STORM WATER PERMIT.
- THE CLEARING LIMITS DEPICTED ON THESE PLANS REPRESENT THE EDGE OF CIVIL-RELATED WORK SUCH AS GRADING, UTILITY, STORM DRAINAGE, AND PAVING IMPROVEMENTS.
- CONTRACTOR SHALL COORDINATE ANY UTILITY SHUTDOWN WITH OWNER AT LEAST 1 WEEK PRIOR TO THE WORK BEING PERFORMED.
- ALL DISTURBED AREAS SHALL BE STABILIZED THROUGH TEMPORARY SEEDING.
- CONTRACTOR TO NEATLY SAWCUT ALONG LINE OF EXISTING PAVEMENT THAT IS TO REMAIN BEFORE REMOVING PAVEMENT.
- WORKING: APPURTENANCES ASSOCIATED WITH EXISTING UTILITIES TO BE REMOVED SHALL BE REMOVED IN THEIR ENTIRETY.

### TESC LEGEND

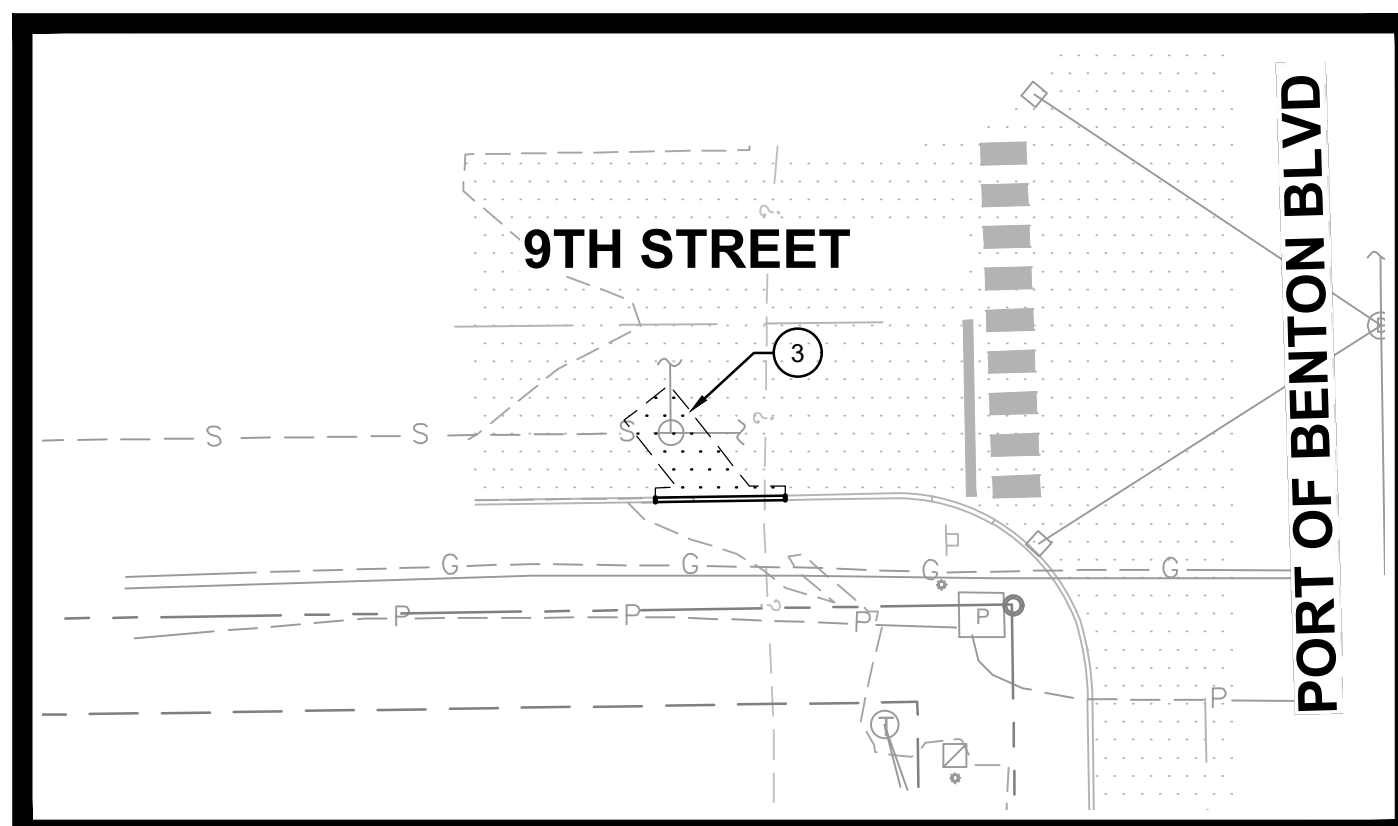
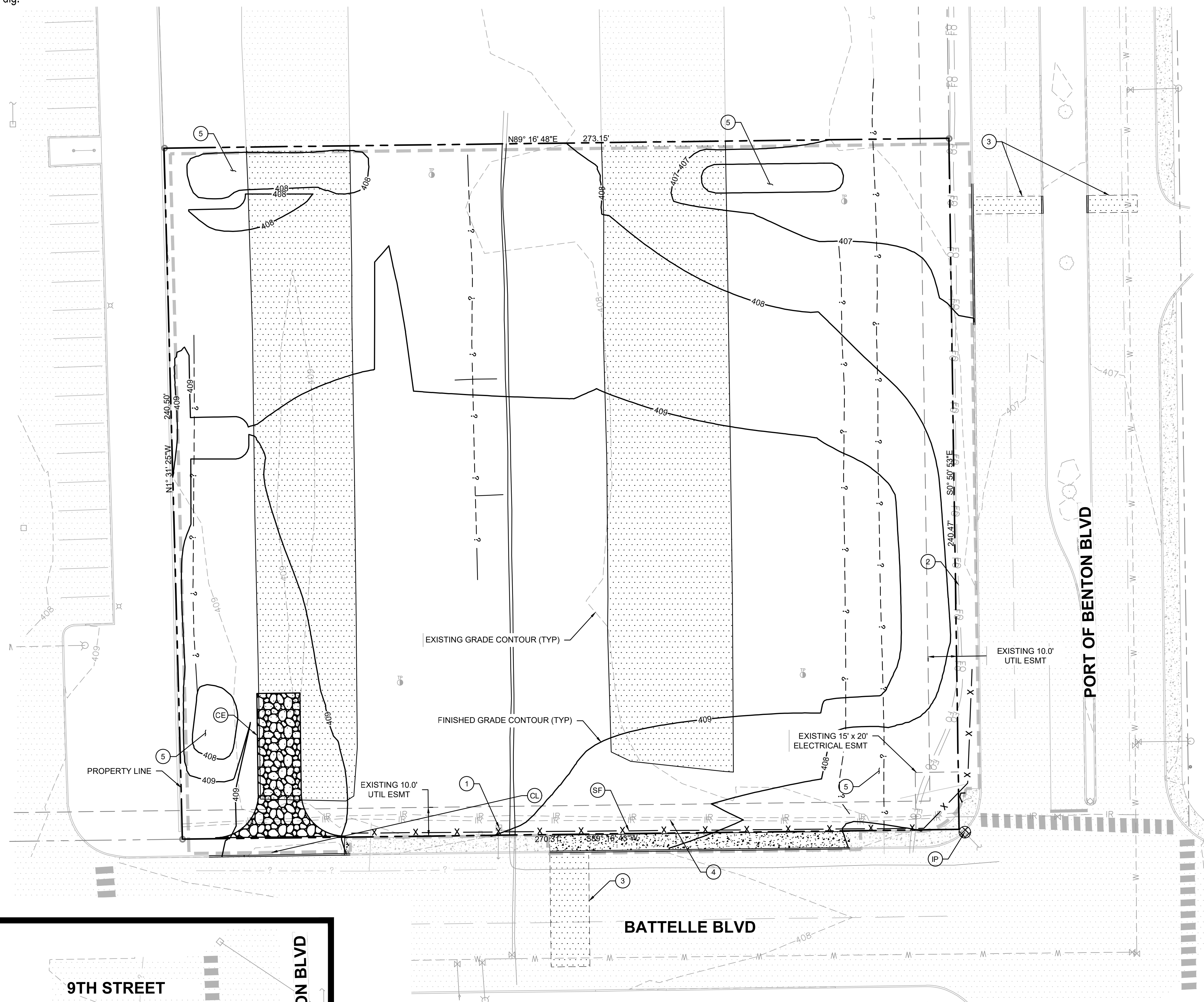
	CONSTRUCTION ENTRANCE	
	INLET PROTECTION	
	SILT FENCE	
	PROJECT CLEARING LIMITS	
	EXISTING GRADE CONTOUR (MINOR)	
	EXISTING GRADE CONTOUR (MAJOR)	
	FINISHED GRADE CONTOUR (MINOR)	
	FINISHED GRADE CONTOUR (MAJOR)	

### DEMOLITION LEGEND

REMOVE	PROTECT
	CONCRETE
	ASPHALT
	SAWCUT
	CURB

### KEYNOTES

- EXISTING UTILITY APPURTENANCES TO REMAIN, CONTRACTOR TO PROTECT IN PLACE.
- EXISTING FIBER OPTIC COMMUNICATION LINE TO REMAIN, CONTRACTOR TO PROTECT IN PLACE.
- CONTRACTOR TO PROVIDE NEAT SAWCUT LINE.
- EXISTING IRRIGATION LINE TO REMAIN, CONTRACTOR TO PROTECT IN PLACE.
- CONTRACTOR TO PROTECT INFILTRATION AREA FROM OVER COMPACTION DURING CONSTRUCTION. LIMIT USE OF TRACT VEHICLES OVER INFILTRATION AREAS.



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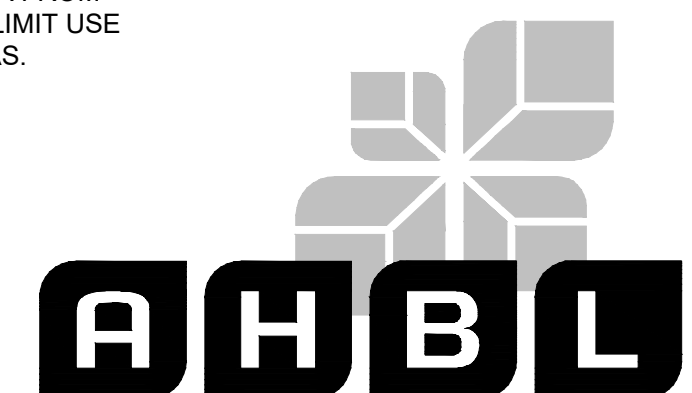
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**RICHLAND FIRE STATION 75**  
**RICHLAND, WA 99352**

TESC & DEMOLITION

PROJECT NO. 20006  
DESIGNED BY KDM  
DRAWN BY KDM  
ISSUE DATE 09/02/2020  
PHASE PERMIT SET  
CHECKED BY EMF  
REVISION  
SHEET NO.



C200

June 1, 2020



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### SILT FENCE NOTES

- SILT FENCE SHALL BE PURCHASED IN A CONTINUOUS ROLL AND CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY FASTENED AT BOTH ENDS TO POST.
- POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 30 INCHES).
- A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WIDE AND 12 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER. THIS TRENCH SHALL BE BACKFILLED WITH WASHED GRAVEL.
- WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
- THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO FENCE, AND 20 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
- SILT FENCES SHALL NOT BE REMOVED BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
- SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
- SILT FENCES WILL BE INSTALLED PARALLEL TO SLOPE CONTOURS.
- CONTRIBUTING LENGTH TO FENCE WILL NOT BE GREATER THAN 100 FEET.
- DO NOT INSTALL BELOW AN OUTLET PIPE OR WEIR.
- INSTALL DOWNSLOPE OF EXPOSED AREAS.
- DO NOT DRIVE OVER OR FILL OVER SILT FENCES.

### HYDROSEEDING NOTES

- HYDROSEEDING SHALL BE APPLIED IN ACCORDANCE WITH THE ESC STANDARD PLAN NOTES ON THIS SHEET.
- HYDROSEEDING TO BE THE FOLLOWING MIXTURE:

COMMON NAME	SEEDING RATES (LBS/AC)		
	A	B	C
WINTER OR SPRING WHEAT (I)	80		
SPRING BARLEY (I)		80	
REGREEN* OR TRITICALE			50
ANNUAL RYEGRASS (I)			
*STERILE WHEAT x WHEATGRASS HYBRID			
(N) = NATIVE PLANT SPECIES			
(I) = INTRODUCED, NON-NATIVE PLANT SPECIES			

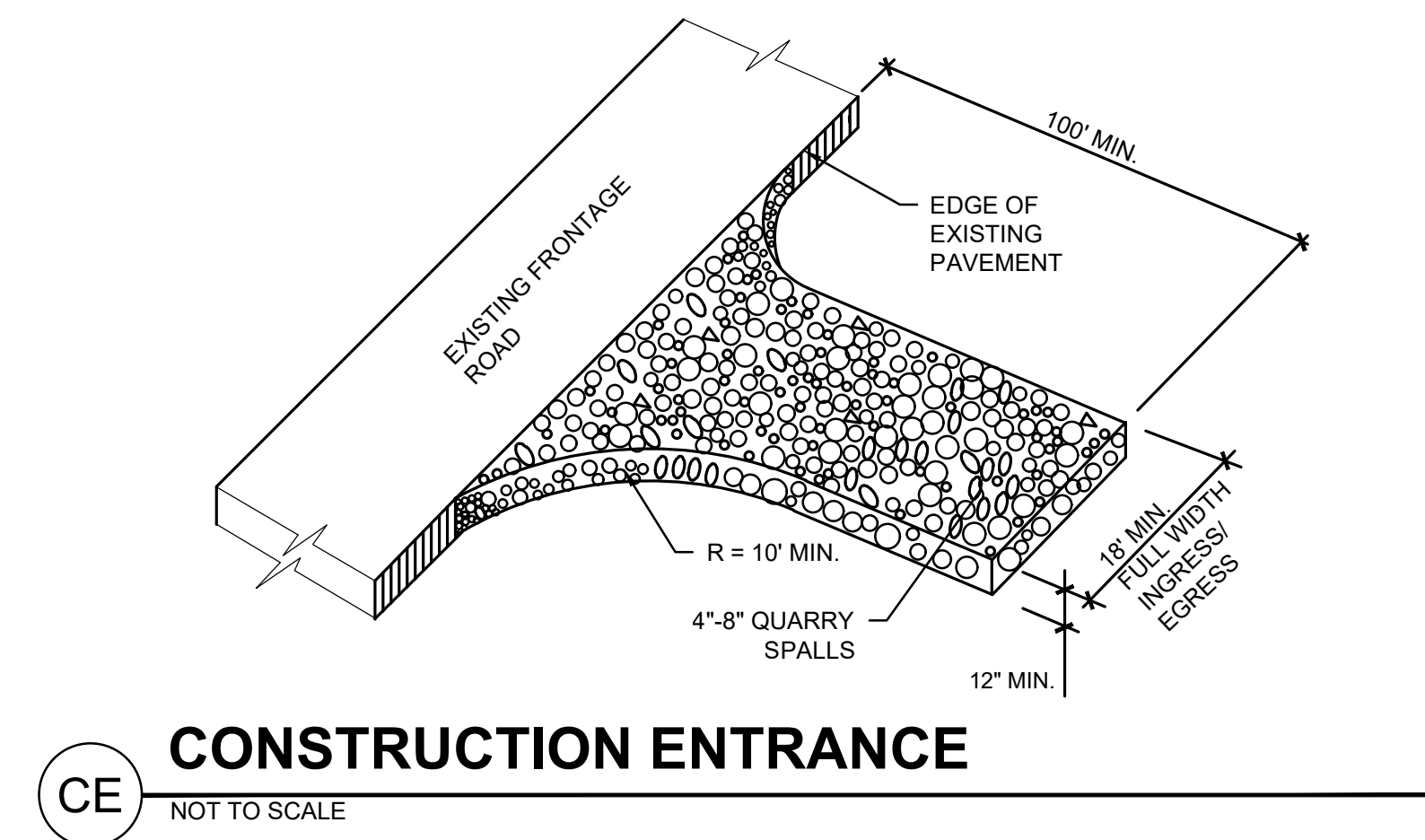
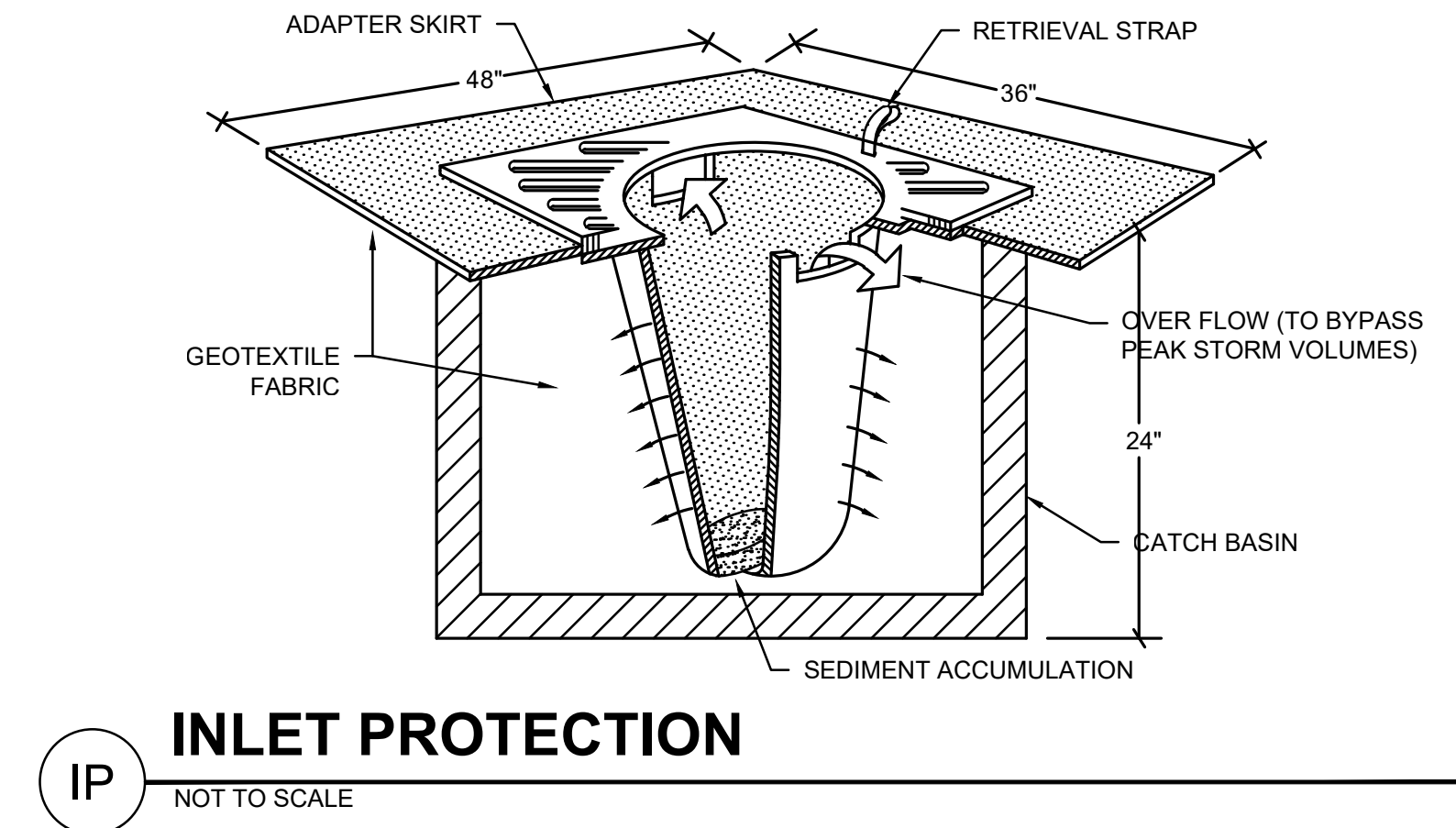
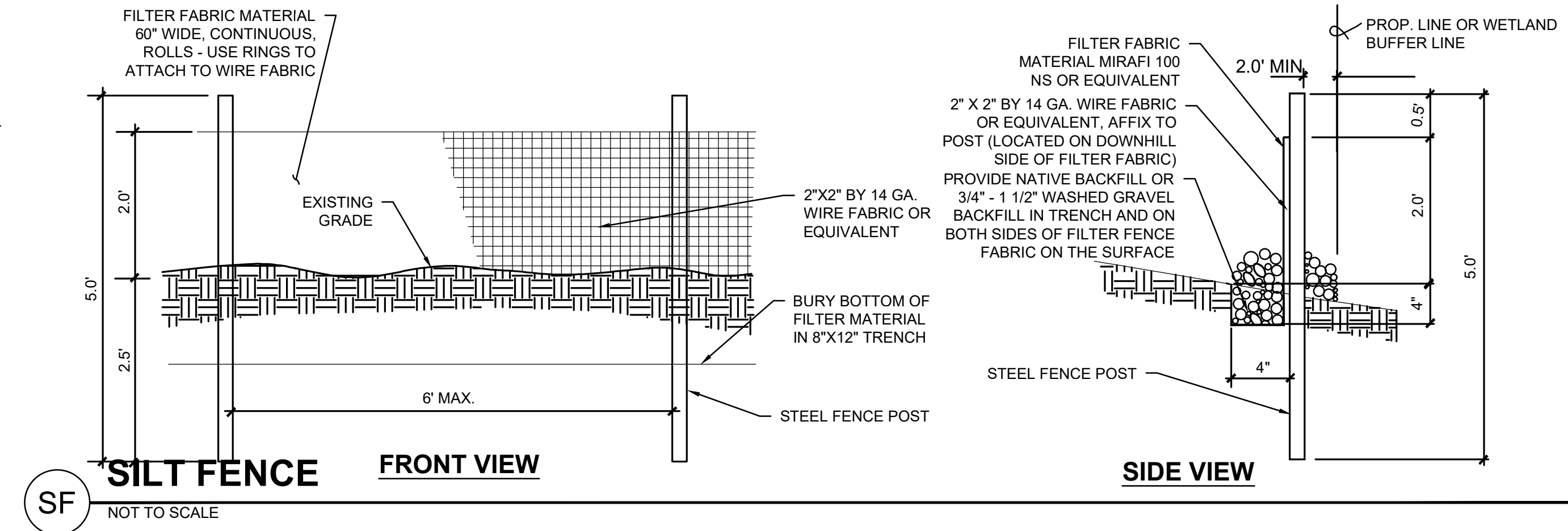
- 500 LBS/ACRE 10-20-20 FERTILIZER, 1500 LBS/ACRE WOOD FIBER CELLULOSE WITH 3 SOIL BINDER OR TACKING AGENT TO BE APPLIED WITH SEED MIXTURE.
- SEED BEDS PLANTED BETWEEN MAY 1 AND AUGUST 31 WILL REQUIRE IRRIGATION AND OTHER MAINTENANCE AS NECESSARY TO FOSTER AND PROTECT THE ROOT STRUCTURE.
- FOR SEED BEDS PLANTED BETWEEN OCTOBER 31 AND APRIL 30, ARMORING OF THE SEED BED WILL BE NECESSARY. (E.G., GEOTEXTILES, JUTE MAT, CLEAR PLASTIC COVERING.)
- BEFORE SEEDING, INSTALL NEEDED SURFACE RUNOFF CONTROL MEASURES SUCH AS GRADIENT TERRACES, INTERCEPTOR DIKES, SWALES, LEVEL SPREADERS AND SEDIMENT BASINS.
- THE SEEDBED SHALL BE FIRM WITH A FAIRLY FINE SURFACE, FOLLOWING SURFACE ROUGHENING. PERFORM ALL OPERATIONS ACROSS OR AT RIGHT ANGLES TO THE SLOPE.
- FERTILIZERS ARE TO BE USED ACCORDING TO SUPPLIERS RECOMMENDATIONS. AMOUNTS USED SHOULD BE MINIMIZED, ESPECIALLY ADJACENT TO WATER BODIES AND WETLANDS.
- SEED SHALL NOT BE USED IN AREAS SUBJECT TO WEAR BY CONSTRUCTION TRAFFIC.

### CONSTRUCTION ENTRANCE NOTES

- MATERIAL SHALL BE 4 INCH TO 8 INCH QUARRY SPALLS AND MAY BE TOP-DRESSED WITH 1 INCH TO 3 INCH ROCK. (WSDOT STANDARD SPECIFICATIONS, SECTION 8-15.)
- THE ROCK PAD SHALL BE AT LEAST 12 INCHES THICK AND 50 FEET LONG. WIDTH SHALL BE THE FULL WIDTH OF THE VEHICLE INGRESS AND EGRESS AREA.
- ADDITIONAL ROCK SHALL BE ADDED PERIODICALLY TO MAINTAIN PROPER FUNCTION OF THE PAD.
- PAVED ROADS SHALL BE KEPT FREE OF SEDIMENT TRACKED FROM THE PROJECT SITE. SEDIMENT TRACKED ONTO ADJACENT PAVED SURFACES SHALL BE REMOVED DAILY BY SWEEPING, WASHING TO SEDIMENT FROM ROAD SURFACE WILL NOT BE ALLOWED.
- A TRUCK WHEEL WASH MAY BE REQUIRED TO BE INSTALLED AT ANY TIME UPON COUNTY'S REQUEST.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DUST CONTROL PER COUNTY REQUIREMENTS.

### TESC STANDARD PLAN NOTES

- THE CONSTRUCTION SEQUENCE ON SHEET C002 SHALL BE FOLLOWED IN ORDER TO BEST MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENTATION CONTROL PROBLEMS.
- INSPECT ALL ROADWAYS, AT THE END OF EACH DAY, ADJACENT TO THE CONSTRUCTION ACCESS ROUTE. IF IT IS EVIDENT THAT SEDIMENT HAS BEEN TRACKED OFF SITE AND/OR BEYOND THE ROADWAY APPROACH, CLEANING IS REQUIRED.
- IF SEDIMENT REMOVAL IS NECESSARY PRIOR TO STREET WASHING, IT SHALL BE REMOVED BY SHOVELING OR PICKUP SWEEPING AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.
- IF STREET WASHING IS REQUIRED TO CLEAN SEDIMENT TRACKED OFF SITE, ONCE SEDIMENT HAS BEEN REMOVED, STREET WASH WASTEWATER SHALL BE CONTROLLED BY PUMPING BACK ON-SITE OR OTHERWISE PREVENTED FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.
- RESTORE CONSTRUCTION ACCESS ROUTE EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITION.
- RETAIN THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM EXTENT PRACTICAL.
- INSPECT SEDIMENT CONTROL BMPs WEEKLY AT A MINIMUM, DAILY DURING A STORM EVENT, AND AFTER ANY DISCHARGE FROM THE SITE (STORMWATER OR NON-STORMWATER). THE INSPECTION FREQUENCY MAY BE REDUCED TO ONCE A MONTH IF THE SITE IS STABILIZED AND INACTIVE.
- CONTROL FUGITIVE DUST FROM CONSTRUCTION ACTIVITY IN ACCORDANCE WITH THE STATE AND/OR LOCAL AIR QUALITY CONTROL AUTHORITIES WITH JURISDICTION OVER THE PROJECT AREA.
- STABILIZE EXPOSED UNWORKED SOILS (INCLUDING STOCKPILES), WHETHER AT FINAL GRADE OR NOT, WITHIN 10 DAYS DURING THE REGIONAL DRY SEASON (JULY 1 THROUGH SEPTEMBER 30) AND WITHIN 5 DAYS DURING THE REGIONAL WET SEASON (OCTOBER 1 THROUGH JUNE 30). SOILS MUST BE STABILIZED AT THE END OF A SHIFT BEFORE A HOLIDAY WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. THIS TIME LIMIT MAY ONLY BE ADJUSTED BY A LOCAL JURISDICTION WITH A "QUALIFIED LOCAL PROGRAM," IF IT CAN BE DEMONSTRATED THAT THE RECENT PRECIPITATION JUSTIFIES A DIFFERENT STANDARD AND MEETS THE REQUIREMENTS SET FORTH IN THE CONSTRUCTION STORMWATER GENERAL PERMIT.
- PROTECT INLETS, DRYWELLS, CATCH BASINS AND OTHER STORMWATER MANAGEMENT FACILITIES FROM SEDIMENT, WHETHER OR NOT FACILITIES ARE OPERABLE.
- KEEP ROADS ADJACENT TO INLETS CLEAN.
- INSPECT INLETS WEEKLY AT A MINIMUM AND DAILY DURING STORM EVENTS.
- CONSTRUCT STORMWATER CONTROL FACILITIES (DETENTION/RETENTION STORAGE POND OR SWALES) BEFORE GRADING BEGINS. THESE FACILITIES SHALL BE OPERATIONAL BEFORE THE CONSTRUCTION OF IMPERVIOUS SITE IMPROVEMENTS.
- STOCKPILE MATERIALS (SUCH AS TOPSOIL) ON SITE, KEEPING OFF OF ROADWAY AND SIDEWALKS.
- COVER, CONTAIN AND PROTECT ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCT, AND NONINERT WASTES PRESENT ON SITE FROM VANDALISM (SEE CHAPTER 173-304 WAC FOR THE DEFINITION OF INERT WASTE), USE SECONDARY CONTAINMENT FOR ON-SITE FUELING TANKS.
- CONDUCT MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM REPAIRS, SOLVENT AND DE-GREASING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES THAT MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. CLEAN ALL CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. IF RAINING OVER EQUIPMENT OR VEHICLE, PERFORM EMERGENCY REPAIRS ON SITE USING TEMPORARY PLASTIC BENEATH THE VEHICLE.
- CONDUCT APPLICATION OF AGRICULTURAL CHEMICALS, INCLUDING FERTILIZERS AND PESTICIDES, IN SUCH A MANNER, AND AT APPLICATION RATES, THAT INHIBITS THE LOSS OF CHEMICALS INTO STORMWATER RUNOFF FACILITIES. AMEND MANUFACTURER'S RECOMMENDED APPLICATION RATES AND PROCEDURES TO MEET THIS REQUIREMENT, IF NECESSARY.
- INSPECT ON A REGULAR BASIS (AT A MINIMUM WEEKLY, AND DAILY DURING/AFTER A RUNOFF PRODUCING STORM EVENT) AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL BMPs TO ENSURE SUCCESSFUL PERFORMANCE OF THE BMPs. NOTE THAT INLET PROTECTION DEVICES SHALL BE CLEANED OR REMOVED AND REPLACE BEFORE SIX INCHES OF SEDIMENT CAN ACCUMULATE.
- REMOVE TEMPORARY ESC BMPs WITHIN 30 DAYS AFTER THE TEMPORARY BMPs ARE NO LONGER NEEDED. PERMANENTLY STABILIZE AREAS THAT ARE DISTURBED DURING THE REMOVAL PROCESS.



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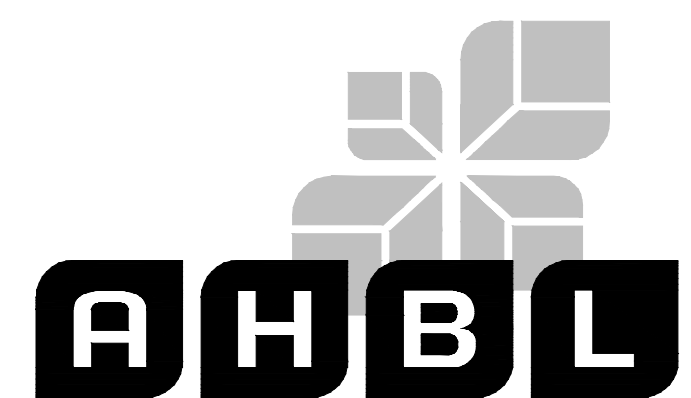
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TESC & DEMOLITION NOTES

PROJECT NO. 20006  
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DRAWN BY KDM  
ISSUE DATE 09/02/2020  
PHASE PERMIT SET  
CHECKED BY EMF  
REVISION  
SHEET NO.

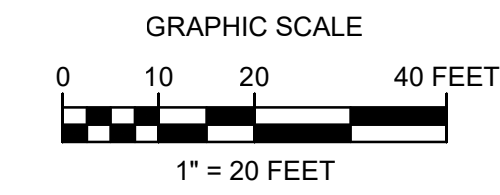
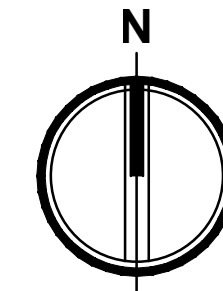
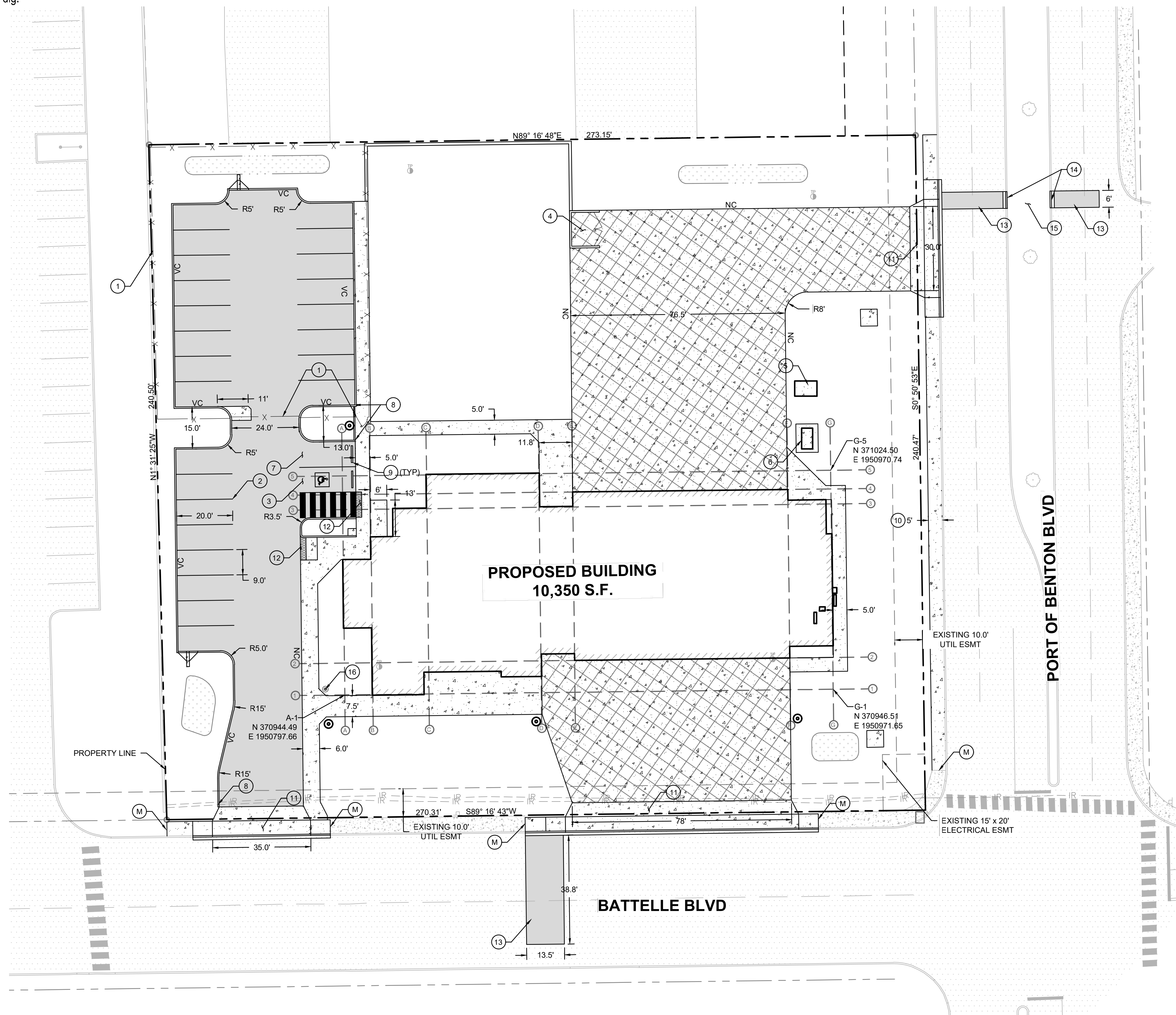


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### SITE PLAN NOTES

- REFER TO LANDSCAPE AND ARCHITECTURAL PLANS FOR ADDITIONAL HORIZONTAL CONTROL, SITE FURNISHINGS, LIGHTING, CONCRETE SCORING, AND RELATED DETAILS NOT SHOWN ON THIS PLAN.
- REFER TO SHEET C101 FOR CIVIL STANDARD NOTES.
- ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- ALL SIGNS TO BE INSTALLED PER CITY OF RICHLAND STANDARDS
- ALL NEW SIDEWALKS AND CONNECTIONS TO EXISTING SIDEWALKS SHALL BE ADA COMPLIANT.

### SURFACING LEGEND

	STANDARD CONCRETE	
	HVY-DTY CONCRETE	
	HMA PAVEMENT	
VC	VERTICAL CURB	
NC	NO CURB	
(M)	MATCH TO EXISTING	
(X)	CHANGE IN CURB TYPE	

### KEYNOTES

- FENCING AND GATE PER LANDSCAPING PLANS
- PARKING STALL MARKINGS
- BARRIER FREE PARKING
- REFER TO SHEET L1.30 FOR TRASH ENCLOSURE
- TRANSFORMER PAD LOCATION, REFER TO ELECTRICAL PLANS
- GENERATOR PAD LOCATION, REFER TO ELECTRICAL PLANS
- EV CHARGING STATION, REFER TO ELECTRICAL PLANS
- CURB NOSE-DOWN
- WHEEL STOP
- CONCRETE SIDEWALK PER CITY OF RICHLAND STD DWG ST1
- DRIVEWAY PER CITY OF RICHLAND STD DWG ST2A, WIDTH PER PLAN
- DETECTABLE WARNING SURFACE PER CITY OF RICHLAND STD DWG ST21
- TRENCH RESTORATION PER CITY OF RICHLAND STD DWG U2
- CURB & GUTTER PER CITY OF RICHLAND STD DWG ST1
- RESTORE LANDSCAPING TO EXISTING CONDITIONS AFTER WATERLINE INSTALLATION AND PAVEMENT/CURB PATCHING
- INSTALL FLAGPOLE PER DETAIL #5 ON SHEET L1.30

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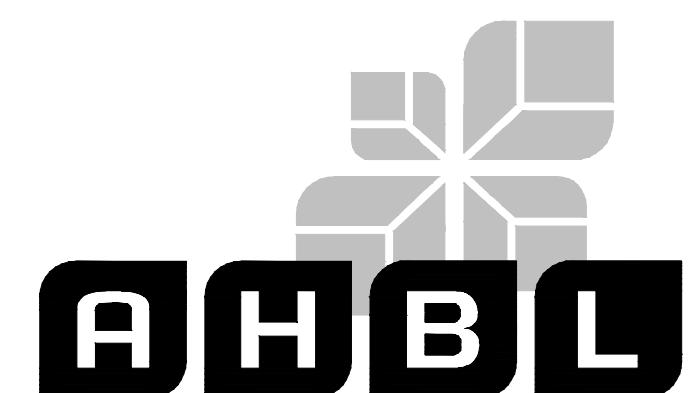
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CIVIL SITE PLAN

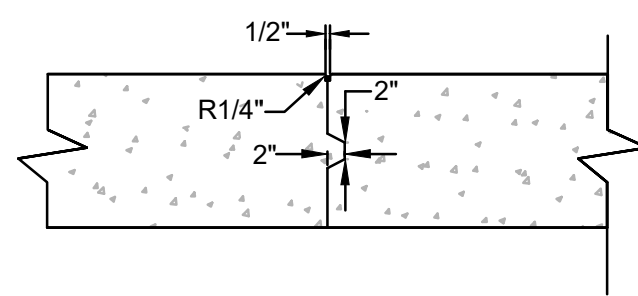
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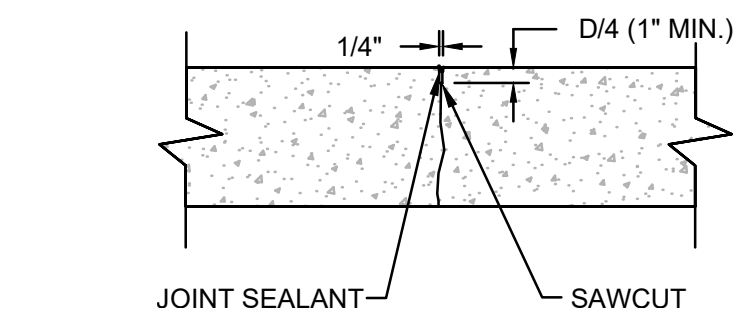


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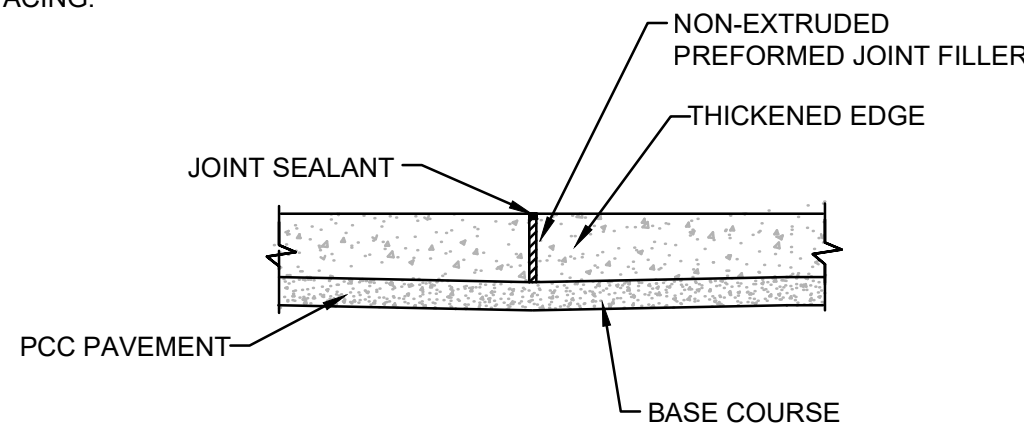


**CONSTRUCTION JOINT**

CONTRACTOR OPTION: IN LIEU OF THE KEYED JOINT, UTILIZE 3/4" DIAMETER (1" DIAMETER AT 8" THICK SECTION) x 16" LONG DOWEL BAR AT 12" SPACING.

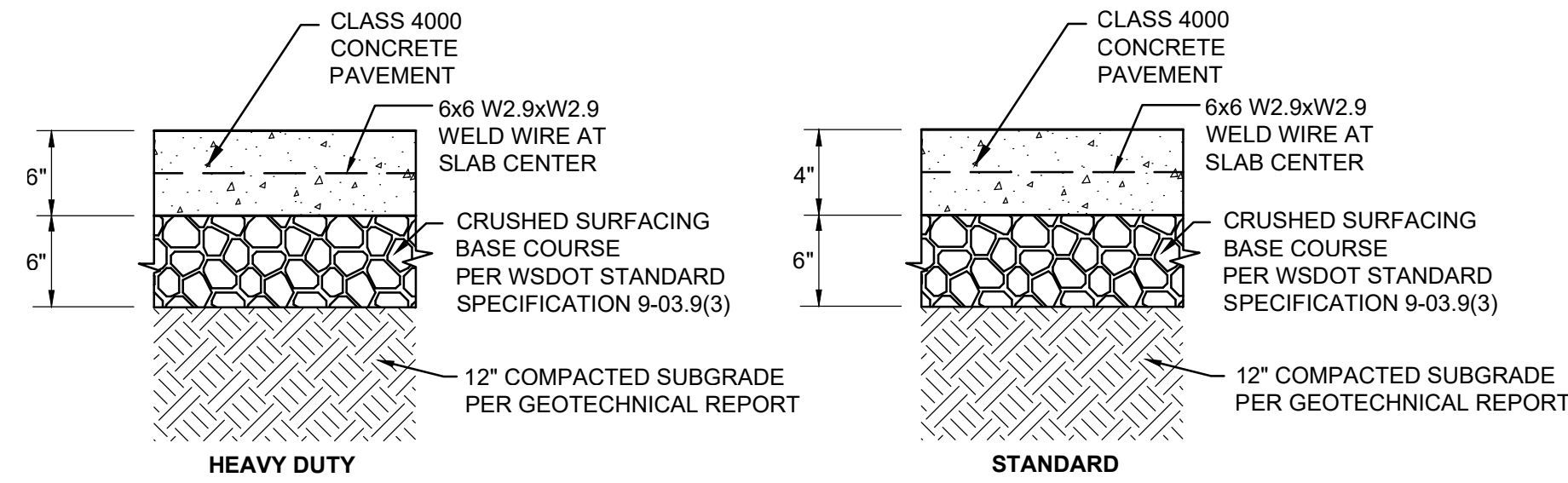


**CONTRACTION JOINT - SPACING PER PLAN**



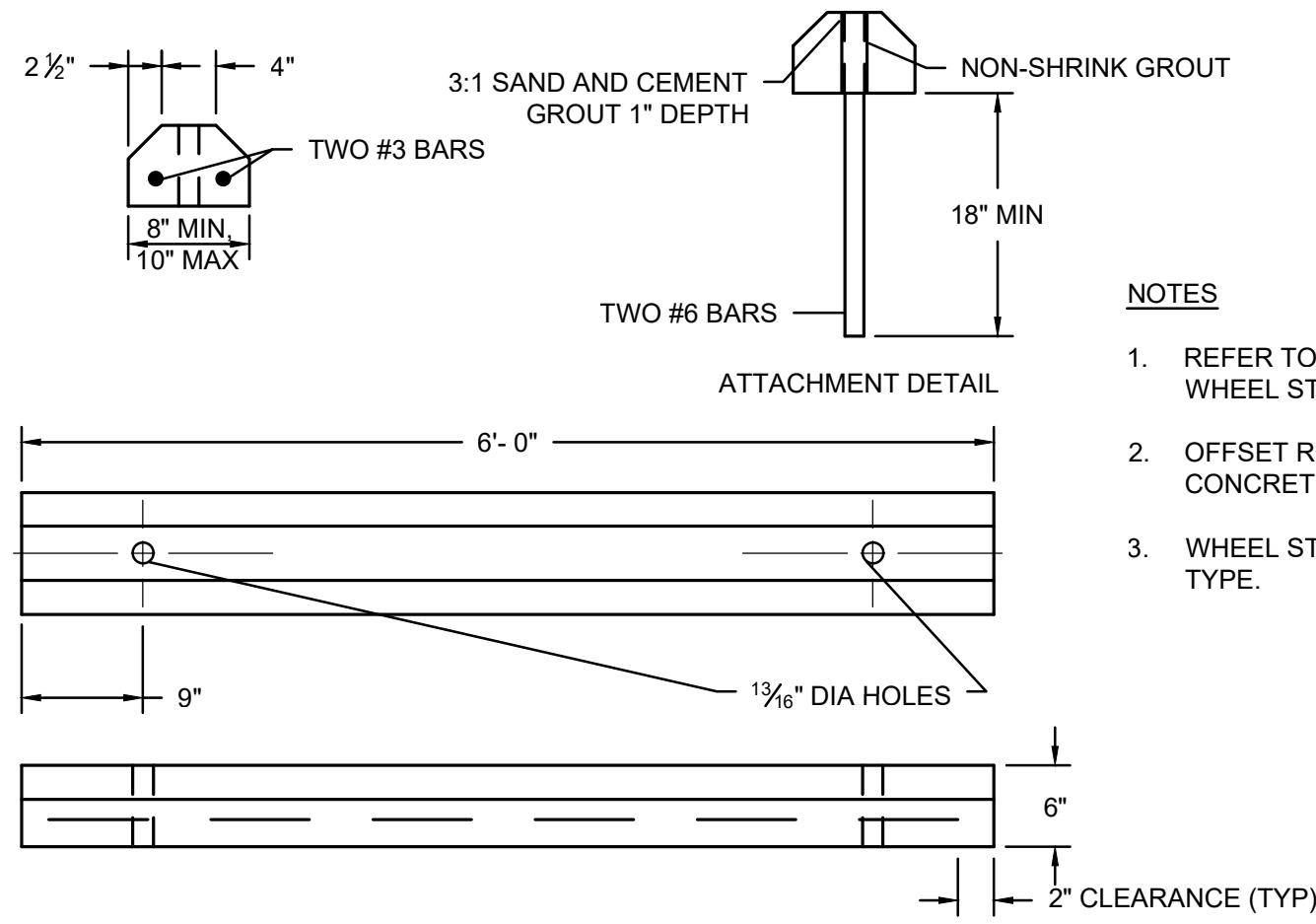
**EXPANSION JOINT - SPACING PER PLAN**

**8 EXPANSION JOINTS**  
NOT TO SCALE



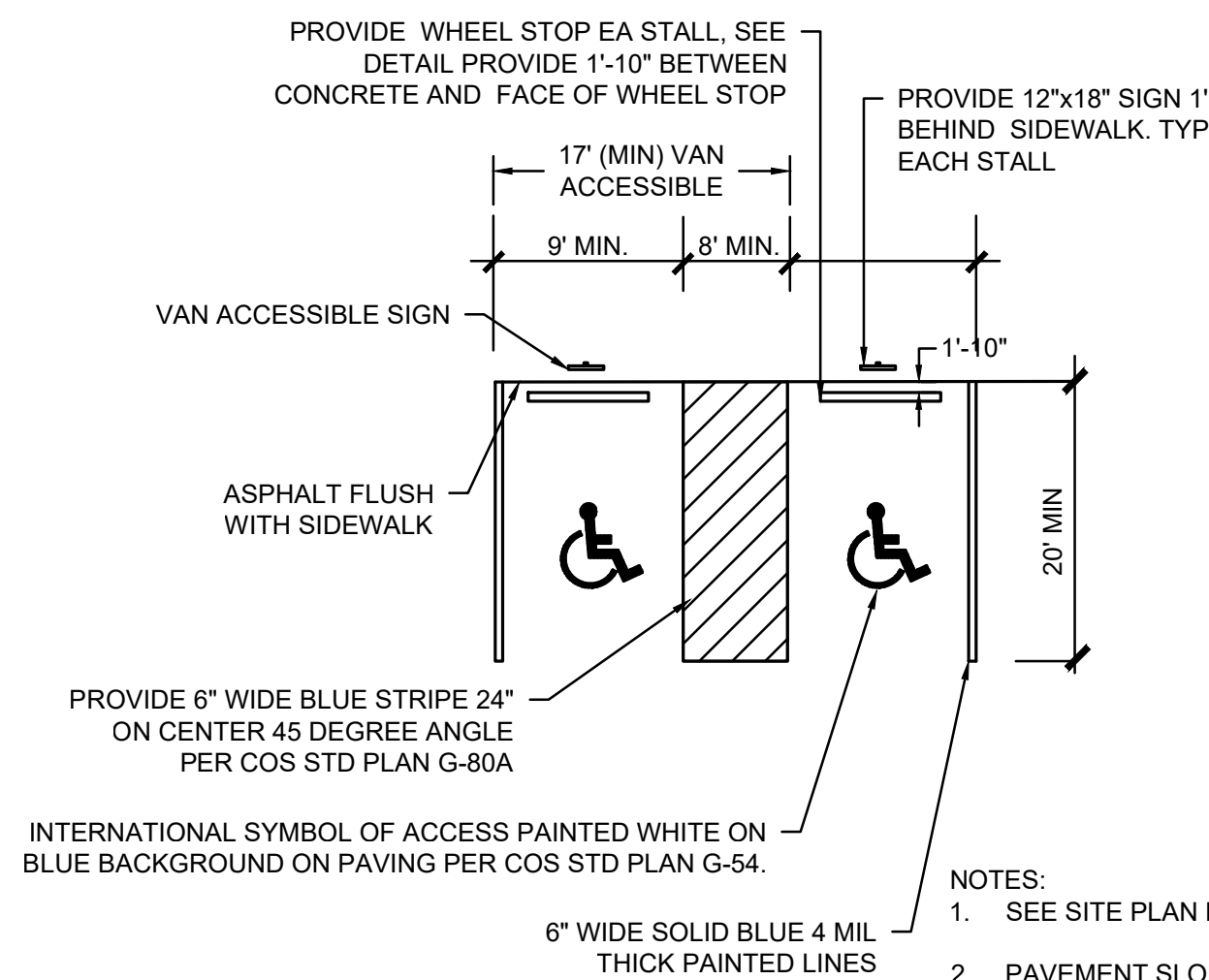
- NOTES:**
1. DEPTHS ARE COMPACTED THICKNESS.
  2. CONCRETE PANELS SHALL BE 12' x 12' MAX.
  3. PROVIDE ISOLATION JOINTS AT 12' INTERVALS AND PER WSDOT DETAIL A-40.15-00.
  4. A BROOMED FINISH IN THE TRANSVERSE DIRECTION SHALL BE PROVIDED.
  5. PREPARE SUBGRADE PER GEOTECHNICAL RECOMMENDATIONS
  6. CONSTRUCTION JOINTS PER DETAIL 8 ON SHEET C301

**1 HEAVY-DUTY & STANDARD CONCRETE SECTIONS**  
NOT TO SCALE



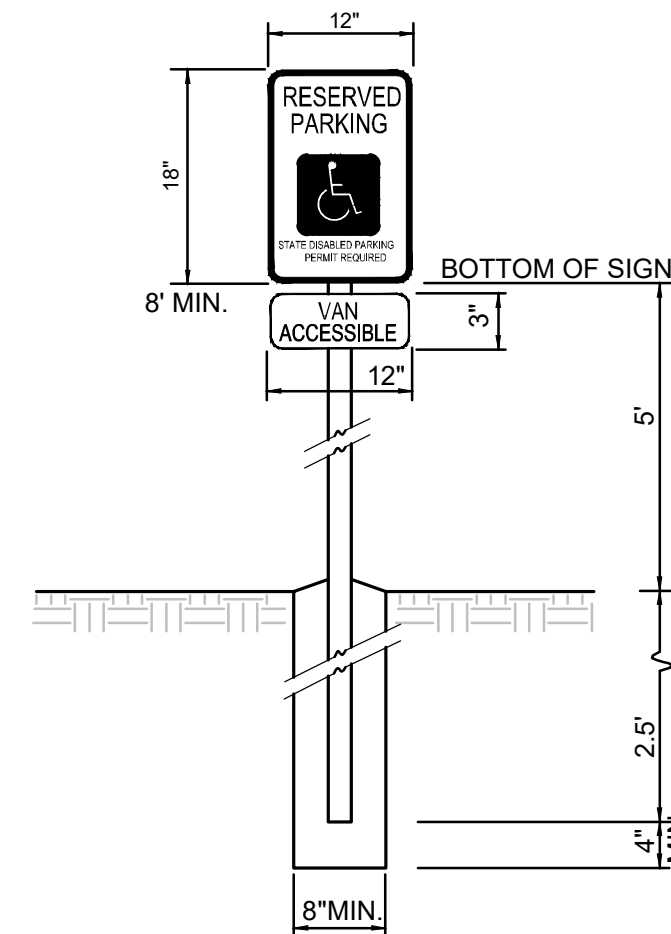
- NOTES:**
1. REFER TO PLAN FOR LOCATION OF WHEEL STOPS.
  2. OFFSET REQUIRED BETWEEN EDGE OF CONCRETE AND WHEEL STOP IS 1'.
  3. WHEEL STOPS SHALL BE FLOW THROUGH TYPE.

**2 WHEEL STOP**  
NOT TO SCALE

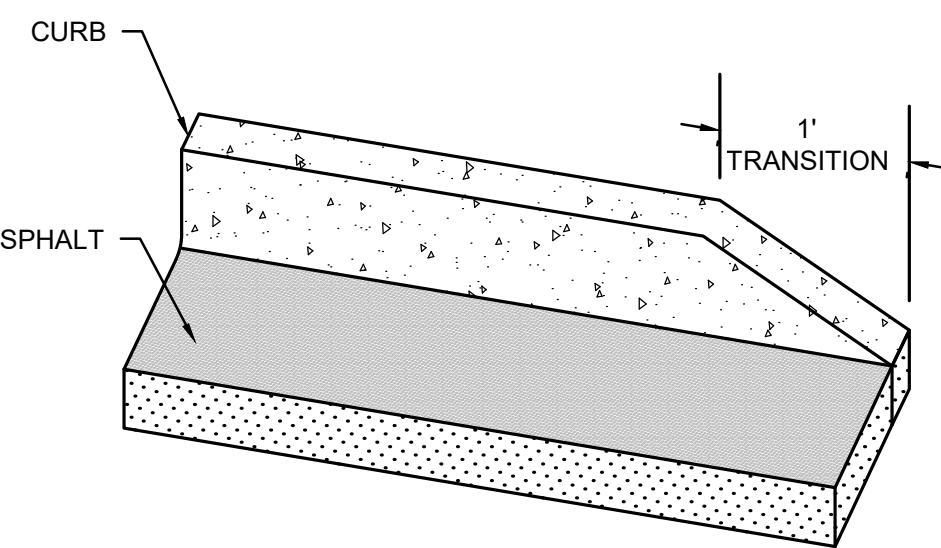


- NOTES:**
1. SEE SITE PLAN FOR PARKING SPACE LOCATIONS.
  2. PAVEMENT SLOPES SHALL NOT EXCEED 2% IN ANY DIRECTION WITHIN BARRIER FREE PARKING SPACES.
  3. MARKINGS TO COMPLY WITH IBC 1101.26 AND WASHINGTON ADMINISTRATIVE CODE AMENDMENTS.
  4. ALL BARRIER FREE STALLS MUST ADHERE TO COS STD PLANS G-54 AND G-80A.

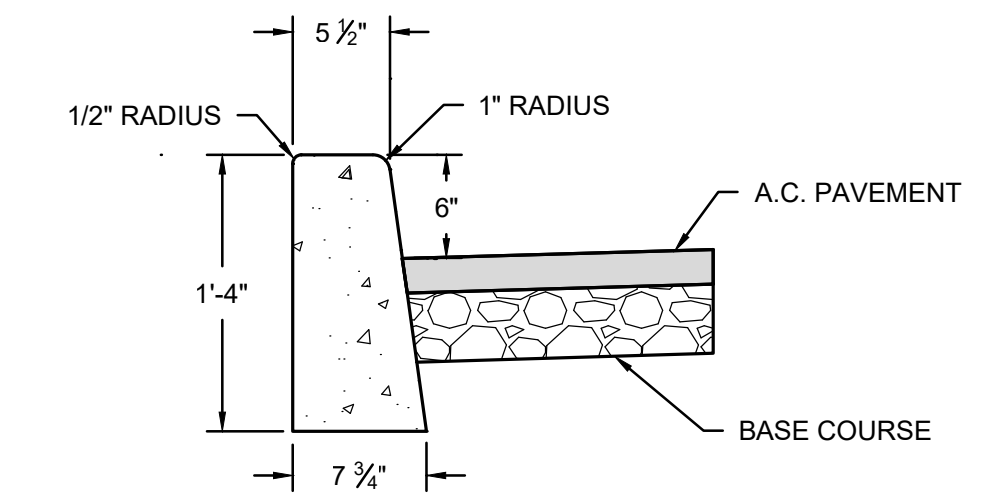
**7 BARRIER FREE PARKING**  
NOT TO SCALE



**6 CURB NOSE-DOWN**  
NOT TO SCALE

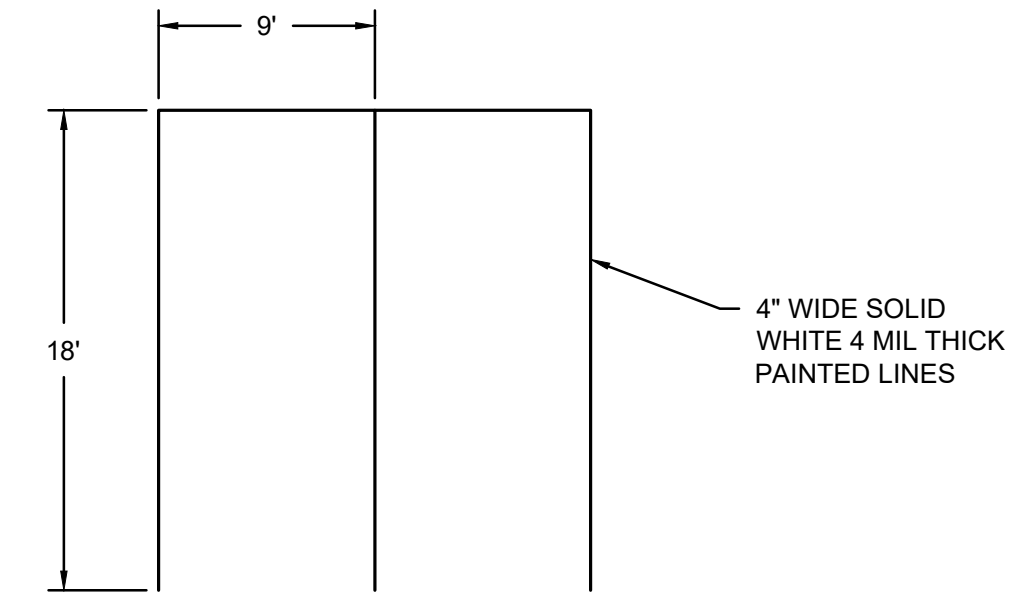


**5 VERTICAL CURB**  
NOT TO SCALE



- NOTES:**
1. CURBS SHALL BE TACK COATED WITH AN ASPHALT EMULSION PRIOR TO PLACEMENT OF CONCRETE.

**4 PARKING STALL MARKINGS**  
NOT TO SCALE



- NOTES:**
1. DEPTHS ARE COMPACTED THICKNESS
  2. REFER TO GEOTECHNICAL REPORT FOR PAVEMENT RECOMMENDATIONS

**3 HMA PAVEMENT SECTION**  
NOT TO SCALE

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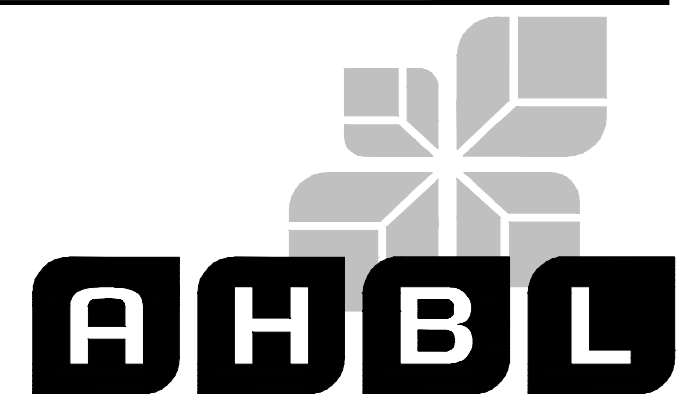
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**RICHLAND, WA 99352**

CIVIL SITE DETAILS

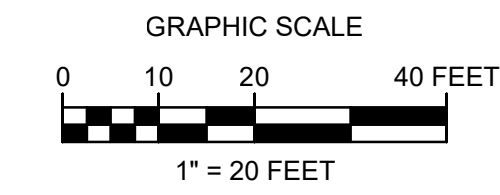
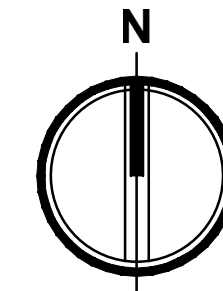
PROJECT NO.	20006
DESIGNED BY	KDM
DRAWN BY	KDM
ISSUE DATE	09/02/2020
PHASE	PERMIT SET
CHECKED BY	EMF
REVISION	
SHEET NO.	



**C301**



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### GRADING & DRAINAGE NOTES

1. THE CONTRACTOR SHOULD TAKE PRECAUTIONS TO PROTECT THE INFILTRATION CAPACITY OF STORMWATER FACILITIES (E.G. LINE THE FACILITY WITH FILTER FABRIC, OVER-EXCAVATE UPON COMPLETION OF THE INFRASTRUCTURE, ETC.)
2. EXCAVATION TO COMPLY WITH APRIL, 2020, "GEO TECHNICAL ENGINEERING EVALUATION" BY GEOPROFESSIONAL INNOVATION CORPORATION.
3. CONTRACTOR SHALL HAVE A MINIMUM (2) TEMPORARY BENCHMARKS (TBMS) WITHIN THE PROJECT AREA WHILE PERFORMING EXCAVATION AND EMBANKMENT. TBMS SHALL HAVE ELEVATIONS NOTED ON LATHE AND BE AVAILABLE FOR INDEPENDENT GRADE VERIFICATION.
4. IF, DURING FINAL INSPECTION, IT IS FOUND THAT THE CONSTRUCTED SWALE DOES NOT CONFORM TO THE ACCEPTED DESIGN, THE SYSTEM SHALL BE RECONSTRUCTED SO THAT IT DOES COMPLY.
5. STORM SEWER PIPES AND DRYWELLS SHALL BE SEPARATED AT LEAST 10 FEET HORIZONTALLY FROM DOMESTIC WATER MAINS. CROSSINGS OF WATER MAINS AND SEWER SYSTEMS SHALL HAVE A MINIMUM 18-INCH VERTICAL SEPARATION. ANY ANTICIPATED SEPARATION LESS THAN MINIMUM STANDARDS CONTAINED HEREIN, SHALL CONFORM TO THE CITY OF RICHLAND 2020 DEVELOPMENT GUIDELINES.

### EARTHWORK QUANTITIES

CUT: 300 CY  
FILL: 1,550 CY  
NET: 1,250 CY

#### NOTES:

1. THE ABOVE QUANTITIES ARE ESTIMATES ONLY INTENDED FOR THE PERMITTING PROCESS. DO NOT USE FOR BID PURPOSES. THE QUANTITIES DO NOT HAVE STRIPPING, COMPACTION, OR CUT OR FILL ADJUSTMENT FACTORS APPLIED TO THEM, NOR DO THEY ACCOUNT FOR PAVEMENT, SIDEWALK OR BUILDING SECTIONS.

### SPOT GRADE KEYNOTES

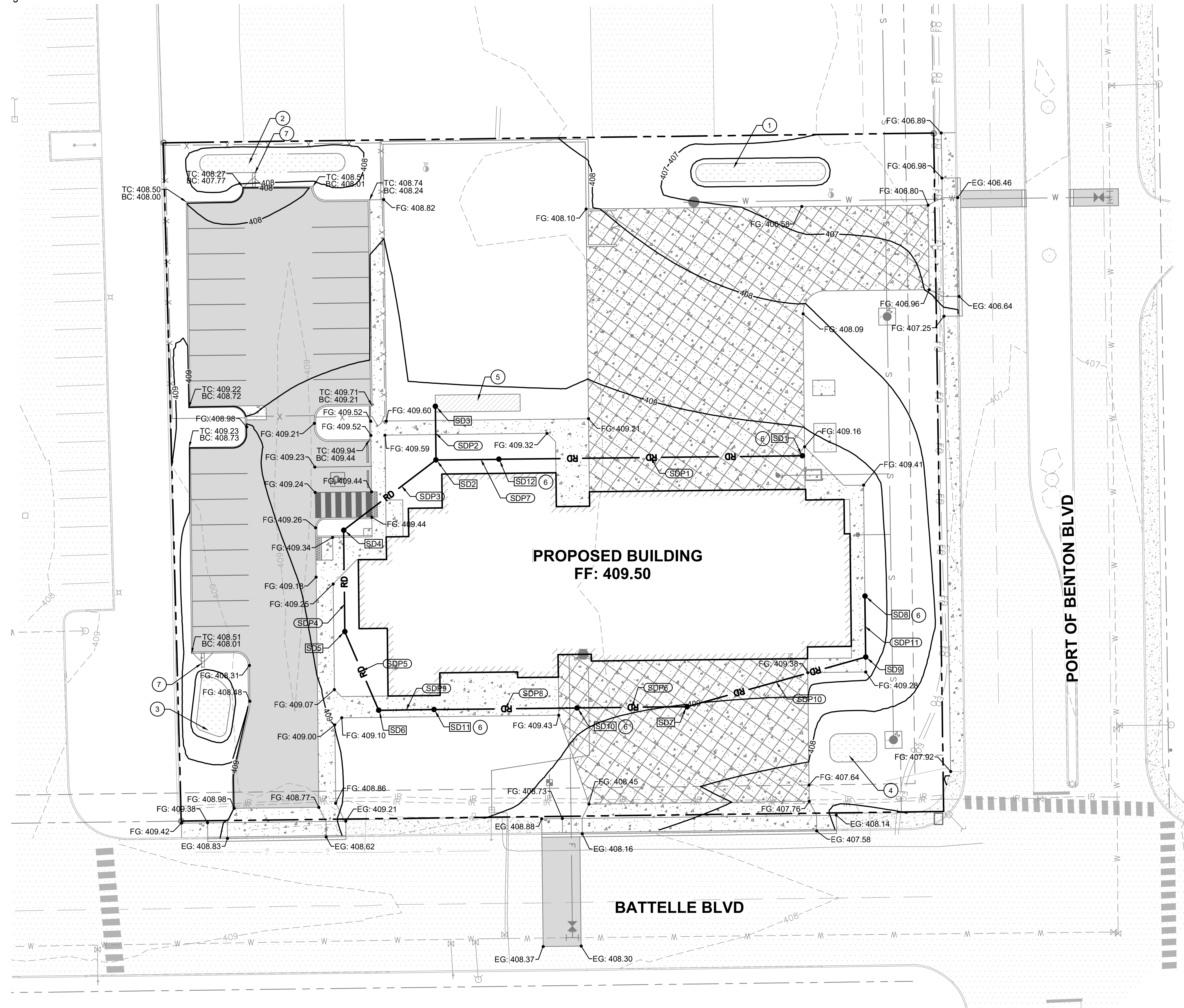
FG FINISHED GROUND ELEVATION  
FL FLOWLINE ELEVATION  
FF FINISHED FLOOR ELEVATION  
EG EXISTING GROUND ELEVATION

### STORM NOTES

1. ALL STORM APPURTENANCES SHALL BE PER CITY OF RICHLAND DESIGN & CONSTRUCTION STANDARDS
2. SDCO SHALL BE PER DETAIL 3 ON SHEET C401.

### KEY NOTES

- 1 INFILTRATION POND 1  
DEPTH: 1.00'  
BOTTOM AREA: 290.00 SF  
ELEVATION: 405.60
- 2 INFILTRATION POND 2  
DEPTH: 0.50'  
BOTTOM AREA: 320.00 SF  
ELEVATION: 407.10
- 3 INFILTRATION POND 3  
DEPTH: 0.50'  
BOTTOM AREA: 200 SF  
ELEVATION: 407.40
- 4 INFILTRATION POND 4  
DEPTH: 0.70'  
BOTTOM AREA: 150 SF  
ELEVATION: 407.10
- 5 6W x 30L x 2D GRAVEL INFILTRATION TRENCH
- 6 ROOF DRAIN CONNECTION
- 7 CURB OPENING PER CITY OF RICHLAND STANDARD DWG S19



### STORM STRUCTURE TABLE

SD #	SDCO	N	E	RIM	IE
SD1	SDCO	N: 371029.5309	E: 1950954.3643	RIM 409.23	IE 406.00 (6" PVC W)
	SDCO	N: 371028.0227	E: 1950824.4702	RIM 409.50	IE 402.96 (6" PVC E)
	SDCO	N: 371028.0227	E: 1950824.4702	RIM 409.50	IE 402.96 (6" PVC SW)
SD2	SDCO	N: 371029.5309	E: 1950954.3643	RIM 409.23	IE 406.00 (6" PVC W)
	SDCO	N: 371028.0227	E: 1950824.4702	RIM 409.50	IE 402.96 (6" PVC E)
	SDCO	N: 371028.0227	E: 1950824.4702	RIM 409.50	IE 402.96 (6" PVC SW)
SD3	SDCO	N: 371047.0234	E: 1950824.2496	RIM 409.09	IE 402.77 (6" PVC S)
	SDCO	N: 371003.1412	E: 1950791.7569	RIM 409.38	IE 403.37 (6" PVC S)
	SDCO	N: 371003.1412	E: 1950791.7569	RIM 409.38	IE 403.37 (6" PVC NE)
SD4	SDCO	N: 371047.0234	E: 1950824.2496	RIM 409.09	IE 402.77 (6" PVC S)
	SDCO	N: 371003.1412	E: 1950791.7569	RIM 409.38	IE 403.37 (6" PVC S)
	SDCO	N: 371003.1412	E: 1950791.7569	RIM 409.38	IE 403.37 (6" PVC NE)
SD5	SDCO	N: 370967.2061	E: 1950792.1742	RIM 409.31	IE 403.73 (6" PVC SE)
	SDCO	N: 370939.3435	E: 1950804.1651	RIM 409.36	IE 404.03 (6" PVC E)
	SDCO	N: 370939.3435	E: 1950804.1651	RIM 409.36	IE 404.03 (6" PVC NW)
SD6	SDCO	N: 370967.2061	E: 1950792.1742	RIM 409.31	IE 403.73 (6" PVC SE)
	SDCO	N: 370939.3435	E: 1950804.1651	RIM 409.36	IE 404.03 (6" PVC E)
	SDCO	N: 370939.3435	E: 1950804.1651	RIM 409.36	IE 404.03 (6" PVC NW)
SD7	SDCO	N: 370940.6118	E: 1950913.4018	RIM 408.97	IE 405.12 (6" PVC W)
	SDCO	N: 370979.8051	E: 1950976.4778	RIM 409.46	IE 406.00 (6" PVC S)
	SDCO	N: 370940.6118	E: 1950913.4018	RIM 408.97	IE 405.12 (6" PVC W)
SD8	SDCO	N: 370940.6118	E: 1950913.4018	RIM 408.97	IE 405.12 (6" PVC W)
	SDCO	N: 370979.8051	E: 1950976.4778	RIM 409.46	IE 406.00 (6" PVC S)
	SDCO	N: 370940.6118	E: 1950913.4018	RIM 408.97	IE 405.12 (6" PVC W)
SD9	SDCO	N: 370958.1721	E: 1950976.7290	RIM 409.38	IE 405.78 (6" PVC N)
	SDCO	N: 370940.1593	E: 1950874.4312	RIM 409.25	IE 404.73 (6" PVC E)
	SDCO	N: 370958.1721	E: 1950976.7290	RIM 409.38	IE 405.78 (6" PVC N)
SD10	SDCO	N: 370958.1721	E: 1950976.7290	RIM 409.38	IE 405.78 (6" PVC N)
	SDCO	N: 370940.1593	E: 1950874.4312	RIM 409.25	IE 404.73 (6" PVC E)
	SDCO	N: 370958.1721	E: 1950976.7290	RIM 409.38	IE 405.78 (6" PVC N)
SD11	SDCO	N: 370939.5701	E: 1950823.6854	RIM 409.43	IE 404.22 (6" PVC E)
	SDCO	N: 371028.2805	E: 1950846.6771	RIM 409.44	IE 404.92 (6" PVC E)
	SDCO	N: 370939.5701	E: 1950823.6854	RIM 409.43	IE 404.22 (6" PVC E)
SD12	SDCO	N: 370939.5701	E: 1950823.6854	RIM 409.43	IE 404.22 (6" PVC E)
	SDCO	N: 371028.2805	E: 1950846.6771	RIM 409.44	IE 404.92 (6" PVC E)
	SDCO	N: 370939.5701	E: 1950823.6854	RIM 409.43	IE 404.22 (6" PVC E)

### STORM PIPE TABLE

SDP #	Length	Material
SDP1	108 LF	6" SDR35 PVC @ 1.00%
SDP2	19 LF	6" SDR35 PVC @ 1.00%
SDP3	41 LF	6" SDR35 PVC @ 1.00%
SDP4	36 LF	6" SDR35 PVC @ 1.00%
SDP5	30 LF	6" SDR35 PVC @ 1.00%
SDP6	39 LF	6" SDR35 PVC @ 1.00%
SDP7	22 LF	6" SDR35 PVC @ 8.83%
SDP8	51 LF	6" SDR35 PVC @ 1.00%
SDP9	20 LF	6" SDR35 PVC @ 1.00%
SDP10	66 LF	6" SDR35 PVC @ 1.00%
SDP11	22 LF	6" SDR35 PVC @ 1.00%

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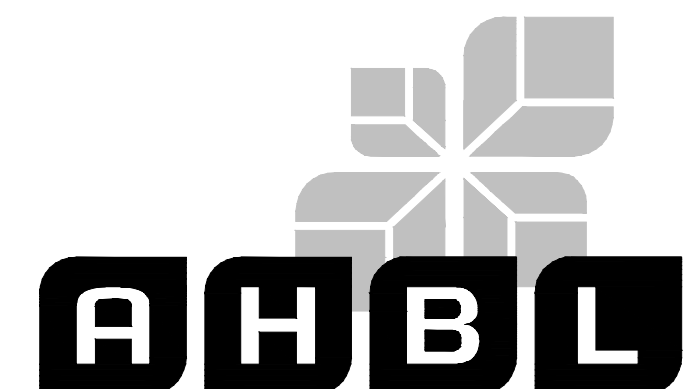
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**CITY OF RICHLAND**  
**RICHLAND FIRE STATION 75**  
**RICHLAND, WA 99352**

GRADING & DRAINAGE PLAN

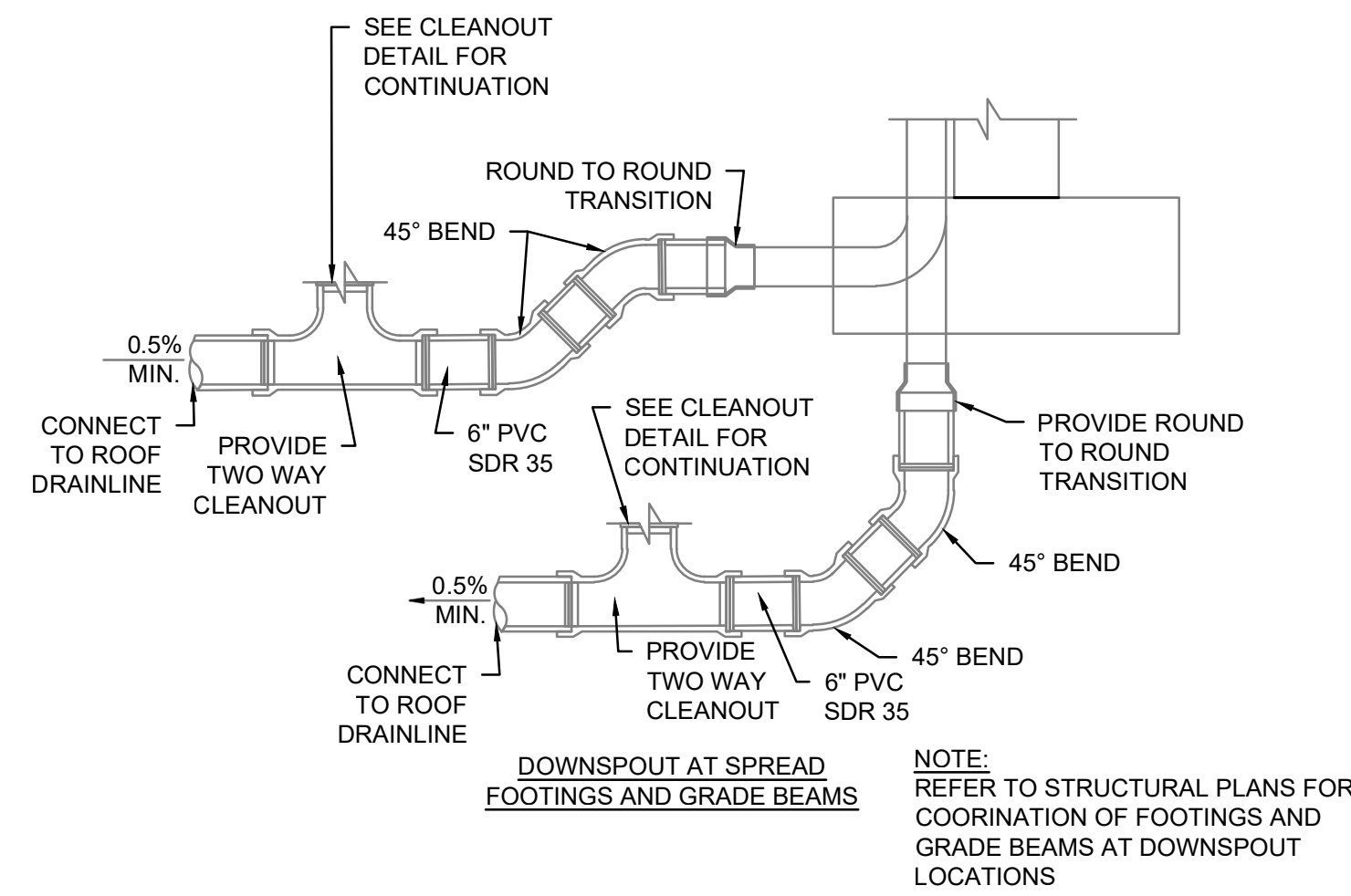
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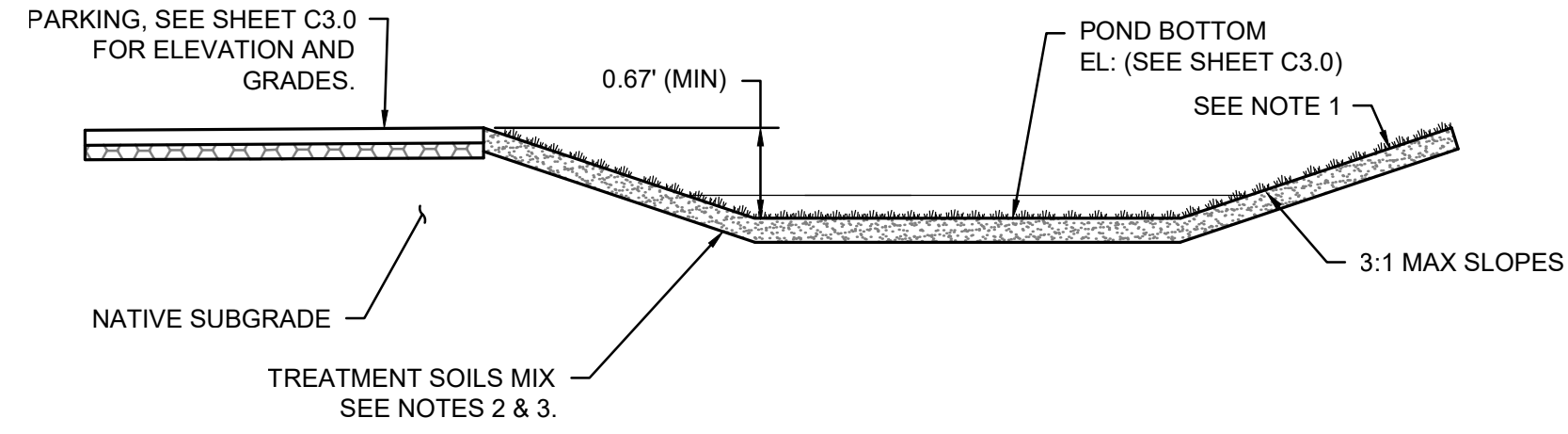
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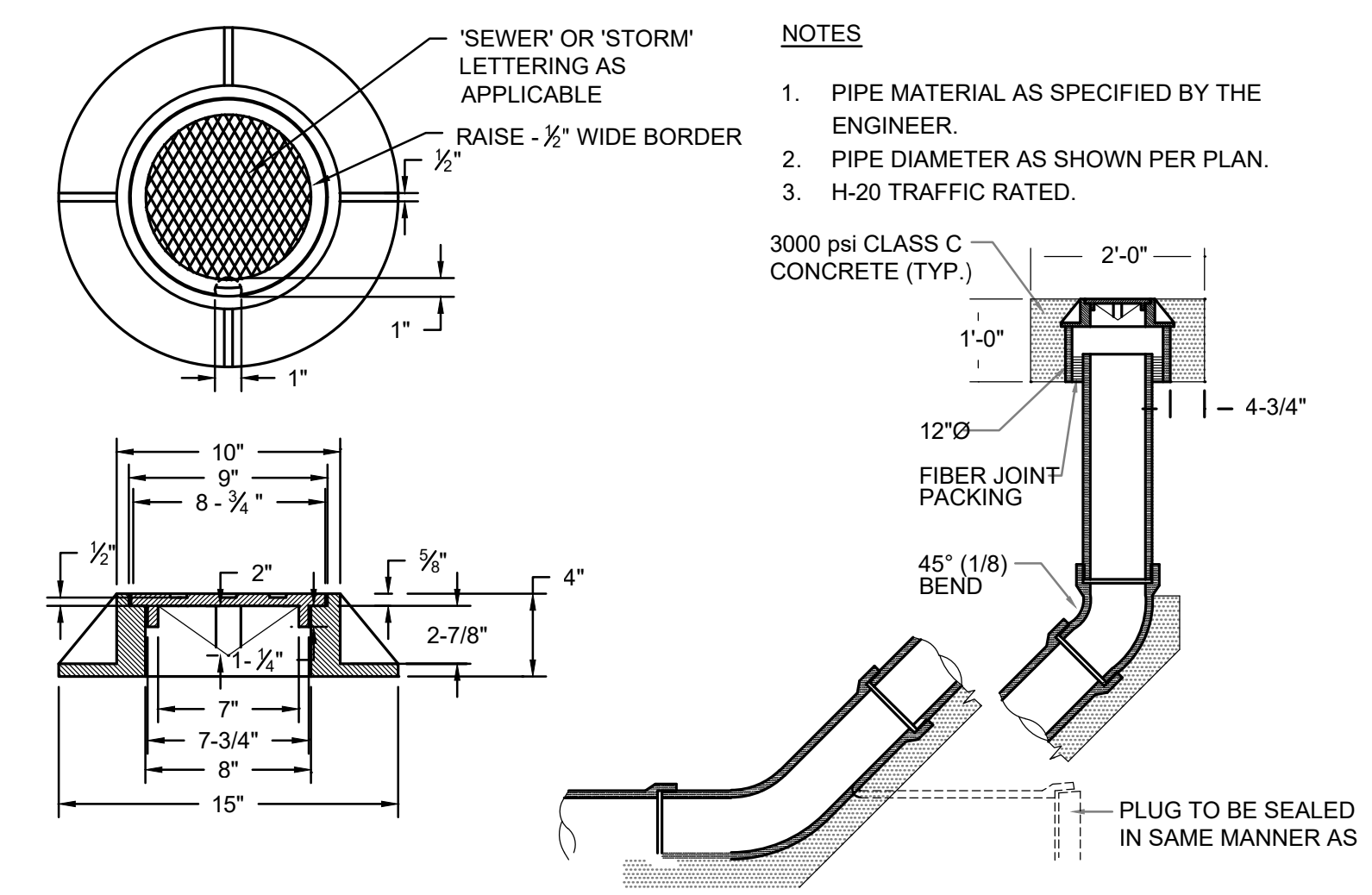


**1 ROOF DRAIN DOWNSPOUT CONNECTION**  
NOT TO SCALE



- NOTES**
- REFER TO LANDSCAPE PLANS FOR PLANTING DETAILS.
  - TOP SOIL IN STORMWATER FACILITIES SHALL CONSIST OF A THOROUGHLY BLENDED MIX OF 60% NON-ANIMAL WASTE COMPOST WITH 40% NATIVE SOILS OR MEET ALL OF THE FOLLOWING DRY SOIL CRITERIA.
    - INFILTRATION RATE BETWEEN 0.25 AND 2.4 INCHES PER HOUR
    - AVERAGE CATION EXCHANGE CAPACITY OF AT LEAST 15 MILLIEQUIVALENTS/100 GRAMS
    - ORGANIC MATTER CONTENT OF AT LEAST 2% BY WEIGHT
  - IN INFILTRATION POND AREAS, SCARIFY AND COMPACT TOP 12 INCHES OF SUBGRADE TO A MINIMUM OF 75 PERCENT AND MAXIMUM 85 PERCENT PRIOR TO PLACING TOPSOIL.
  - ORGANIC MATTER, CEC TESTING SHALL BE PERFORMED TO A MINIMUM DEPTH OF 6" FROM POND BOTTOMS. ONE TEST PER EACH POND OF 1,500 SQUARE FEET OR LESS AND ONE TEST PER EACH ADDITIONAL 2,000 SQUARE FEET IS REQUIRED.
  - DO NOT COMPACT MATERIALS UNDER BIO-INFILTRATION AREAS. AVOID CONSTRUCTION EQUIPMENT TRAVEL IN TREATMENT FACILITY AREAS.

**2 BIO-INFILTRATION POND**  
NOT TO SCALE



**3 STORM OR SANITARY CLEANOUT**  
NOT TO SCALE

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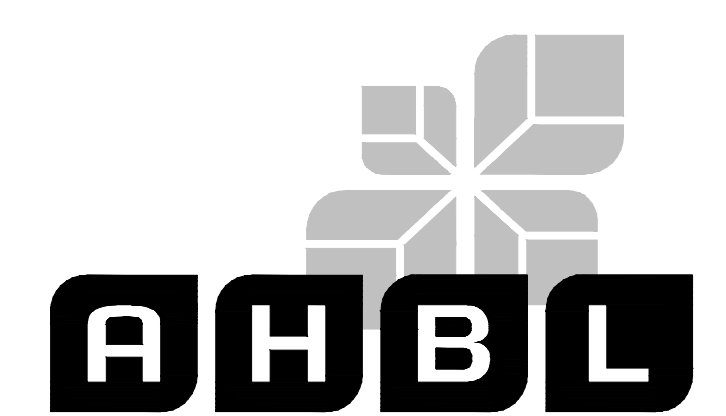
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**CITY OF RICHLAND**  
**RICHLAND FIRE STATION 75**  
**RICHLAND, WA 99352**  
GRADING & DRAINAGE DETAILS

PROJECT NO.	20006
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DRAWN BY	KDM
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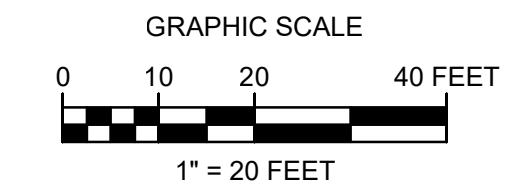
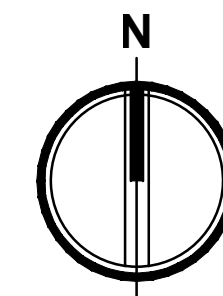
**C401**





Know what's below.  
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SEE C501 FOR CONTINUATION



**DOMESTIC WATER NOTES**

1. WATER MAIN BEDDING SHALL BE PER CITY OF RICHLAND STD DWG U2.
2. FIRE HYDRANT ASSEMBLY SHALL BE PER CITY OF RICHLAND STD DWG W14.
3. 1" DCVA SHALL BE PER CITY OF RICHLAND STD DWG W20.
4. 1" WATER SERVICE SHALL BE PER CITY OF RICHLAND STD DWG W3.
5. TAPPING SLEEVE SHALL BE PER CITY OF RICHLAND STD DWG W11.
6. 1" IRRIGATION SERVICE SHALL BE PER CITY OF RICHLAND STD DWG IRR6.

**SANITARY SEWER NOTES**

1. SANITARY SEWER BEDDING SHALL BE PER CITY OF RICHLAND STD DWG U2.
2. SANITARY SEWER SERVICES SHALL BE 6" IN DIAMETER & MARKED WITH A 10" - 2X4 METAL STUD SHOWING DEPTH IN 1' INCREMENTS AND PAINTED GREEN ON THE TOP 36" PER CITY OF RICHLAND STD DWG S10.
3. SSCO SHALL BE PER CITY OF RICHLAND STD DWG S9.
4. OIL WATER SEPARATOR SHALL BE WILBERT PRECAST 1,000 GALLON CAPACITY (1627OWTB) OR EQUIVALENT TRAFFIC RATED OWS..

**KEYNOTES**

1. 2" TYPE K COPPER DOMESTIC WATER LINE, CONNECT AFTER EXISTING METER.
2. BUILDING CONNECTION, SEE PLUMBING PLANS FOR CONTINUATION
3. ELECTRICAL APPURTENANCES AND ELECTRICAL TRENCHING IN LOCATIONS SHOWN. SEE ELECTRICAL FOR OTHER INFORMATION.

**WATER STRUCTURE TABLE** ##

WA1	(1) 4" FDC BUILDING MOUNT N: 370959.1768 E: 1950876.7106	WA6	(1) 1.5" SERVICE TAP N: 370908.0550 E: 1950864.8033
WA2	(1) 12" X 6" TAPPING SLEEVE (FL), (1) 6" GATE VALVE ( FL X MJ), THRUST BLOCKING N: 370858.7214 E: 1950872.8767	WA7	(1) 1.5" DCVA IRR POC N: 370916.6843 E: 1950864.7031
WA3	EXISTING WATER SERVICE N: 370903.9701 E: 1950844.3308	WA8	(1) FIRE HYDRANT ASSEMBLY N: 371119.4222 E: 1950915.8673
WA4	(1) 1" DCVA N: 370913.4261 E: 1950844.2210	WA9	(1) 12" X 8" TAPPING SLEEVE (FL), (1) 8" GATE VALVE ( FL X MJ), THRUST BLOCKING N: 371121.1352 E: 1951063.3943
WA5	(1) 1.5" IRRIGATION SERVICE N: 370913.6845 E: 1950864.7320		

**WATER PIPE TABLE** ##

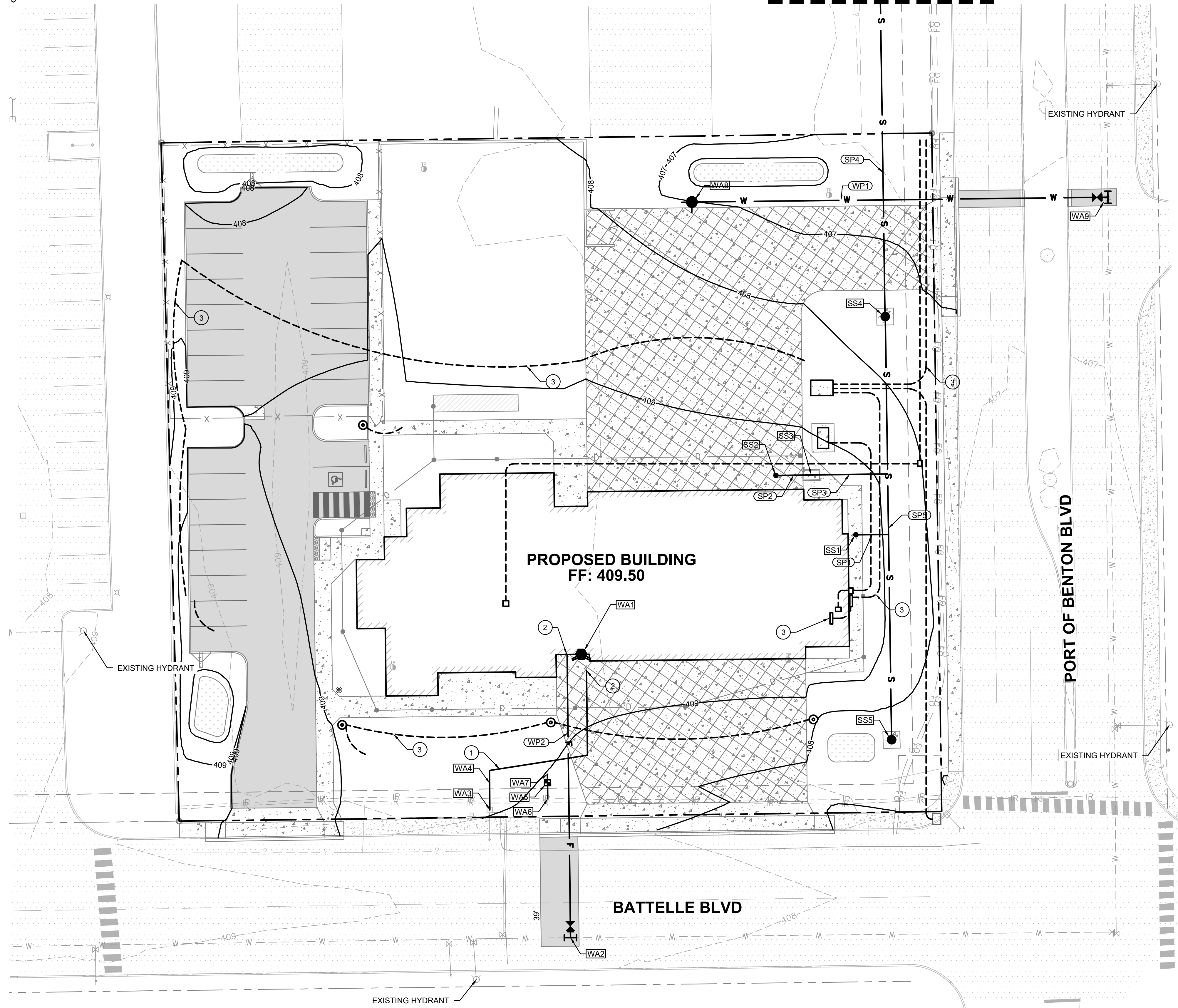
WP1	148 LF 8" CL50 DIP
WP2	100 LF 6" CL50 DIP

**SANITARY SEWER STRUCTURE TABLE** ##

SS1	SSCO N: 371001.5320 E: 1950974.0066 RIM 409.48 IE 405.50 (6" E)	SS4	48" SSMH N: 371078.8515 E: 1950984.3957 RIM 407.50 IE 400.78 (8" S) IE 400.68 (8" N)
SS2	SSCO N: 371022.5433 E: 1950945.6049 RIM 409.39 IE 406.00 (6" E)	SS5	48" SSMH N: 370928.8680 E: 1950986.6159 RIM 407.63 IE 401.53 (8" N)
SS3	OIL WATER SEPARATOR N: 371022.7301 E: 1950958.2197 RIM 408.43 IE 405.87 (6" W) IE 405.62 (6" E)		

**SANITARY SEWER PIPE TABLE** ##

SP1	12 LF 6" SDR35 PVC @ 30.78%
SP2	13 LF 6" SDR35 PVC @ 1.00%
SP3	27 LF 6" SDR35 PVC @ 14.15%
SP4	317 LF 8" SDR35 PVC @ 0.50%
SP5	150 LF 8" SDR35 PVC @ 0.50%



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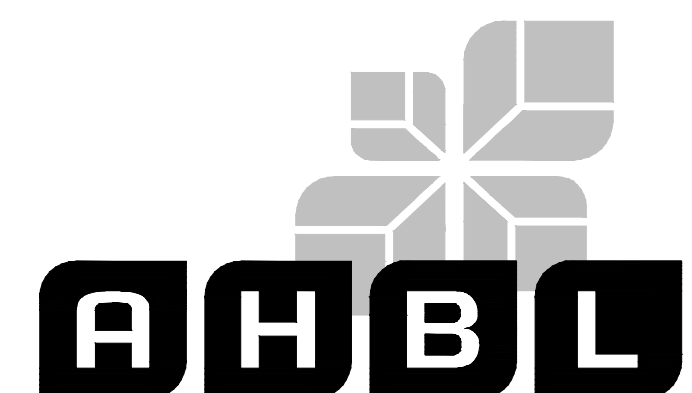
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CITY OF RICHLAND  
RICHLAND FIRE STATION 75  
RICHLAND, WA 99352

UTILITY PLAN

PROJECT NO.	20006
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DRAWN BY	KDM
ISSUE DATE	09/02/2020
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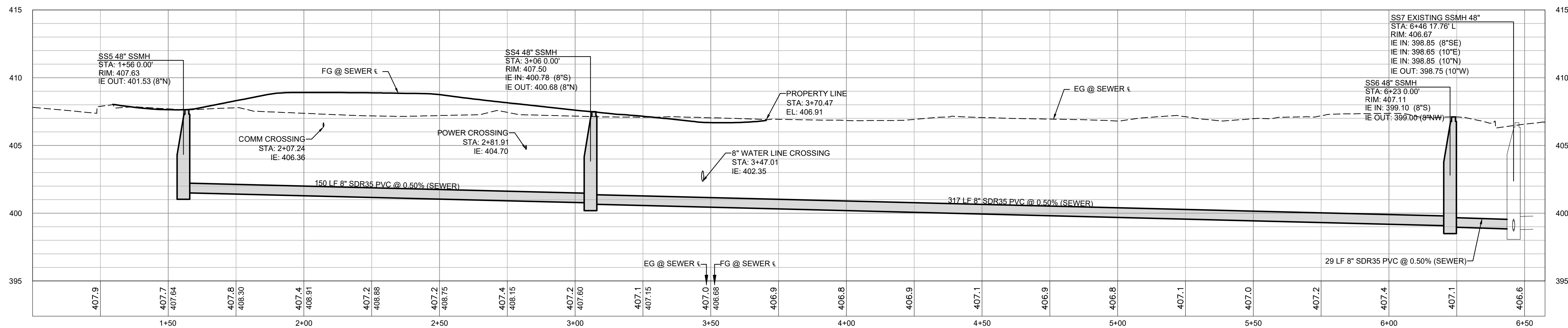
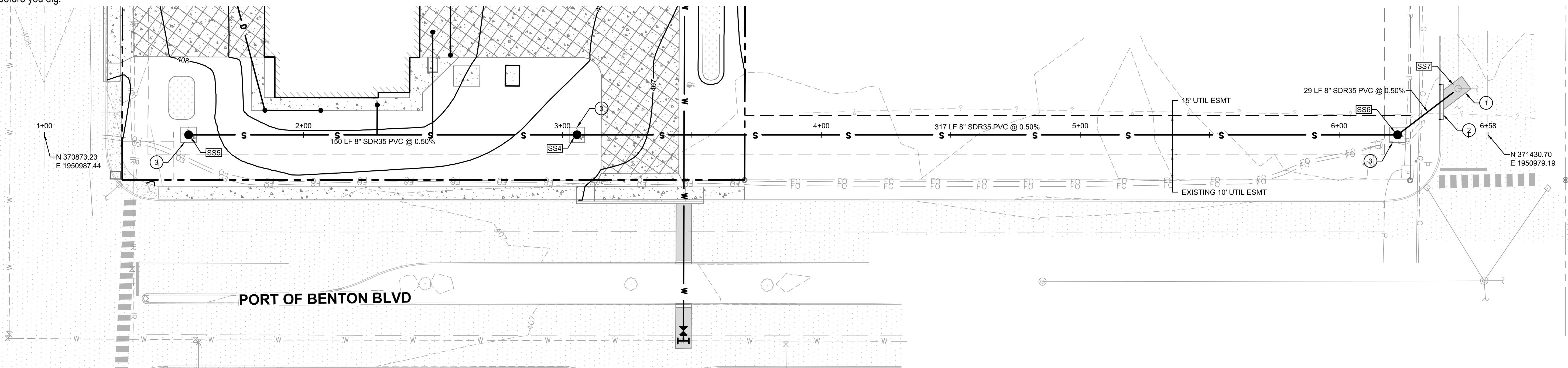
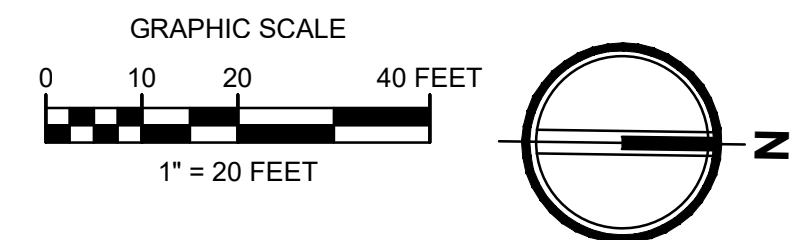


C500

June 1, 2020



Know what's below.  
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**SEWER EXTENSION PROFILE**  
SCALE: H: 1" = 20', V: 1" = 4'

- KEYNOTES**
- ① TRENCH RESTORATION PER CITY OF RICHLAND STD DWG U2
  - ② CURB & GUTTER PER CITY OF RICHLAND STD DWG ST1
  - ③ CONCRETE COLLAR PER CITY OF RICHLAND STD DWG U4

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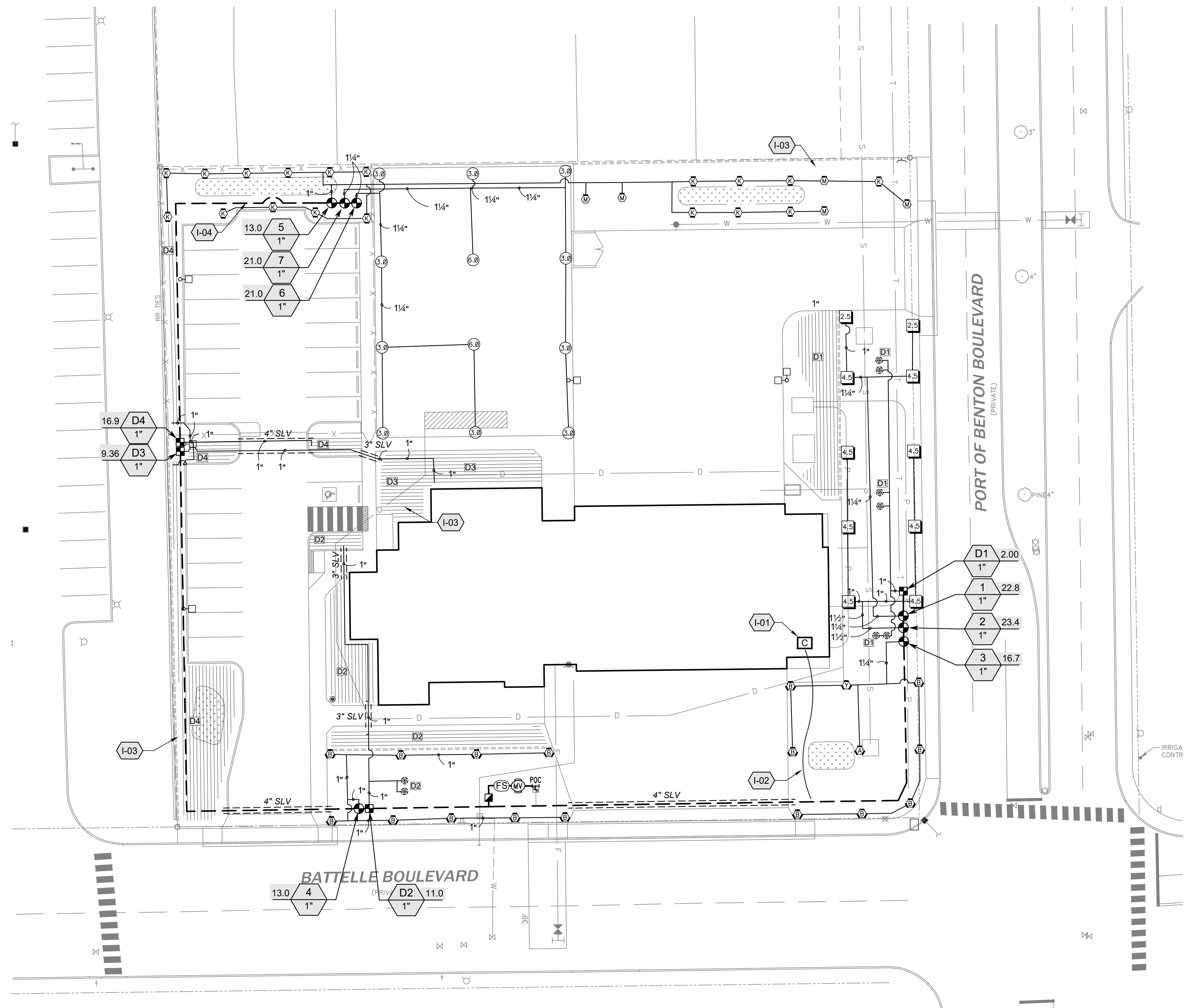
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**RICHLAND FIRE STATION 75**  
**RICHLAND, WA 99352**  
SEWER MAIN PLAN & PROFILE

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DRAWN BY	KDM
ISSUE DATE	09/02/2020
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SHEET NO.	



**C501**

May 27, 2020



**IRRIGATION SCHEDULE**

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Hunter MP2000 PROS-06-PRS40-CV Turf Rotator, 6" (15.24 cm) pop-up with factory installed check valve, pressure regulated to 40 psi (2.76 bar), MP Rotator nozzle on PRS40 body. K=Black adj arc 90-210, G=Green adj arc 210-270, R=Red 360 arc.
	Hunter MP3000 PROS-06-PRS40-CV Turf Rotator, 6" (15.24 x 4 cm) pop-up with factory installed check valve, pressure regulated to 40 psi (2.76 bar), MP Rotator nozzle on PRS40 body. B=Blue adj arc 90-210, Y=Yellow adj arc 210-270, A=Gray 360 arc.
	Hunter I-20-04 Turf Rotor, 4.0" Pop-Up, Adjustable and Full Circle. Plastic Riser. Drain Check Valve. Standard Nozzle.
	Hunter I-20-04-LA Turf Rotor, 4.0" Pop-Up, Adjustable and Full Circle. Plastic Riser. Drain Check Valve. Low Angle Nozzle.
	Root Zone Watering as Specified
	Area to Receive Hunter PLD-06-18 (12) Dripline as Specified. Install per detail 1/L1.45 using "Modified Layout" where possible to reduce watering areas without plants.
	Rain Bird X CZ-100-PRB-COM Wide Flow Drip Control Kit for Commercial Applications. 1" Ball Valve with 1" PESB Valve and 1" Pressure Regulating 40psi Quick-Check Basket Filter. 0.3gpm to 20gpm.
	Rain Bird PEB 1" Plastic Industrial Valves. Low Flow Operating Capability, Globe Configuration.
	Quick coupler valve as specified
	1" Bermad Normally Open Master Valve as Specified
	1" Flow Sensor As Specified
	Irrigation Controller as Specified
	1-1/2" Point of Connection per Civil
	Irrigation Lateral Line as Specified
	1 1/2" Irrigation Mainline as Specified
	Pipe Sleeve size per plans: PVC Schedule 40

**VALVE SCHEDULE**

NUMBER	MODEL	SIZE	TYPE	GPM
1	Rain Bird PEB	1"	Turf Rotor	22.80
2	Rain Bird PEB	1"	Turf Rotor	23.40
3	Rain Bird PEB	1"	Turf Rotary	16.71
4	Rain Bird PEB	1"	Turf Rotary	12.97
5	Rain Bird PEB	1"	Turf Rotary	13.02
6	Rain Bird PEB	1"	Turf Rotor	21.00
7	Rain Bird PEB	1"	Turf Rotor	21.00
D1	Rain Bird X CZ-100-PRB-COM	1"	Drip Emmitter/AFD	2.00
D2	Rain Bird X CZ-100-PRB-COM	1"	Drip Emmitter/AFD	10.99
D3	Rain Bird X CZ-100-PRB-COM	1"	Area for Dripline	9.36
D4	Rain Bird X CZ-100-PRB-COM	1"	Area for Dripline	16.91

**IRRIGATION GENERAL NOTES**

1. SYSTEM DESIGN BASED ON THE ASSUMPTION OF THE AVAILABILITY OF 35 GPM AND 70 PSI AT THE EXISTING MAINLINE CONNECTION POINT. FINAL PRESSURE TO BE 50 PSI AT ALL ROTATORS, 40 AT ROTARY HEADS.
2. CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES PRIOR TO INITIATION OF ANY DEMOLITION OR CONSTRUCTION OPERATIONS. ANY DAMAGE TO EXISTING UTILITIES SHALL BE CONTRACTOR'S RESPONSIBILITY.
3. COORDINATE ALL IRRIGATION INSTALLATION OPERATIONS WITH CIVIL, MECHANICAL, AND ELECTRICAL ENGINEERING SHEETS.
4. CONTRACTOR TO COORDINATE INSTALLATION OF IRRIGATION CONDUIT AND SLEEVES UNDER HARD SURFACE AREAS (COMPLETED IMPROVEMENTS) WITH RESPECTIVE CONTRACTORS.
5. CONTRACTOR TO OBTAIN AND PAY FOR ALL PERMITS AND FEES REQUIRED FOR THIS WORK.
6. OTHERS SHALL SUPPLY AND INSTALL TAP AND METER, REFER TO CIVIL. VERIFY TYPE OF METER AND INSTALLATION REQUIREMENTS WITH MUNICIPALITY OR WATER DISTRICT.
7. IRRIGATION PIPING LAYOUT IS SCHEMATIC WHERE LINES ARE SHOWN BELOW PAVEMENT ADJACENT TO LANDSCAPE AREAS. THEY ARE TO BE LOCATED IN THE LANDSCAPE AREA.
8. ALL ELECTRICAL WORK TO MEET OR EXCEED N.E.C., STATE CODES, LOCAL CODES, AND MANUFACTURER'S RECOMMENDATIONS.
9. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL ROCK AND DEBRIS BROUGHT TO THE SURFACE AS A RESULT OF TRENCHING OPERATIONS.
10. CONTRACTOR SHALL REFER TO SPECIFICATIONS AND DETAIL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
11. ALL PIPES NOT LABELED SHALL BE 1" MINIMUM.
12. REFER TO SPECIFICATIONS FOR AS-BUILT DRAWING SUBMITTAL.
13. ADJUST HEAD AND PIPE LOCATIONS AS REQUIRED TO AVOID SITE FEATURES. ANY MAJOR CHANGES TO PLAN SHALL BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO WORK.
14. SPRAY FOAM INSULATION AT SLEEVE ENDS AFTER ALL PIPE AND WIRE ARE INSTALLED TO HELP PREVENT WATER FROM ENTERING SLEEVES.
15. MAKE ALL WIRE CONNECTIONS INSIDE A VALVE BOX. ALL VALVE BOXES ARE TO BE LOCATED OUTSIDE OF TURF AREAS.

**IRRIGATION KEYED NOTES**

SYMBOL	IRRIGATION DESCRIPTION
	MOUNT SPECIFIED CONTROLLER IN ROOM #. MOUNTING HEIGHT TO BE 4'-0" FROM FINISH GRADE TO THE BOTTOM OF THE BOX. CONTRACTOR TO PROVIDE 120 VAC, 60 HZ POWER, ETHERNET CONNECTION AND CONDUIT TO CONTROLLER. COORDINATE WITH MECHANICAL AND ELECTRICAL SHEETS FOR LOCATION.
	INSTALL IRRIGATION CONTROL WIRE CONTROL WIRE IN 1-1/2" ELECTRICAL CONDUIT FROM CONTROLLER TO A PULL BOX AT IRRIGATION MAIN LINE. PULL BOX TO BE STANDARD VALVE BOX SIZE AND INSTALLED PER REMOTE CONTROL VALVE DETAIL.
	AREA FOR DRIP IRRIGATION IS SHOWN AS A GENERAL REFERENCE TO INSTALLATION DETAIL. ADJUST EXTENTS OF IRRIGATED AREA TO ONLY WHAT IS NECESSARY. SEE OPTIONAL LAYOUT OPTION WITHIN DETAIL FOR MORE INFORMATION.
	IRRIGATION MAINLINE TO BE LOCATED OUTSIDE OF SWALE BOTTOM.

Know what's below.  
Call before you dig.

0 10' 20' 40'  
ONE INCH = TWENTY FEET

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**RICHLAND FIRE STATION #75**  
**RICHLAND FIRE STATION**  
**RICHLAND, WA**  
**IRRIGATION PLAN**

PROJECT NO.	2006
DESIGNED BY	BPO
DRAWN BY	BPO
ISSUE DATE	09/02/2020
PHASE	Permit Set
CHECKED BY	
REVISION	
SHEET NO.	L1.10



09.02.2020



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RICHLAND FIRE STATION #75  
 RICHLAND FIRE STATION  
 RICHLAND, WA  
 LANDSCAPE PLAN

PROJECT NO.	2006
DESIGNED BY	BPO
DRAWN BY	BPO
ISSUE DATE	09/02/2020
PHASE	Permit Set
CHECKED BY	
REVISION	
SHEET NO.	

L1.20

LANDSCAPE LEGEND

PLANTS TO BE INSTALLED PER DETAILS  
 L.p01, L.p02 and L.p03

PLANT CALLOUT:  
 QUANTITY  
 PLANT IDENTIFICATION KEY

CONCRETE LANDSCAPE  
 EDGING PER DETAIL.

3'-4" BASALT BOULDER AS  
 SPECIFIED - 20 Count

INSTALL TURF SEED AS SPECIFIED

TYPE 1 ROCK MULCH AS SPECIFIED.

TYPE 2 ROCK MULCH AS SPECIFIED.

PLANT SCHEDULE

TREES	BOTANICAL / COMMON NAME	CONT	CAL	SIZE	QTY
LF	Liquidambar styraciflua JFS KW1LS / Firehouse Sweet Gum	15 gal			2
PF	Pinus flexilis 'Vanderwolf's Pyramid' / Vanderwolf's Pyramid Pine	B & B		4'-5'	3
PC	Pyrus calleryana 'Chanticleer' / Chanticleer Pear	15 gal	1.5"Cal		7
TC	Tilia cordata 'Greenspire' / Greenspire Littleleaf Linden	15 gal	1.5"Cal		4
SHRUBS	BOTANICAL / COMMON NAME	SIZE	FIELD2	FIELD3	QTY
CD	Caryopteris x clandonensis 'Dark Knight' / Dark Knight Bluebeard	2 gal			28
ST	Spiraea betulifolia 'Tor' / Birchleaf Spirea	2 gal			31
GRASSES	BOTANICAL / COMMON NAME	SIZE	FIELD2	FIELD3	QTY
KF	Calamagrostis arundinacea 'Karl Foerster' / Foerster's Feather Grass	2 gal			11
KR	Pennisetum orientale 'Karley Rose' / Karley Rose Fountain Grass	2 gal			42
PERENNIALS	BOTANICAL / COMMON NAME	SIZE	FIELD2	FIELD3	QTY
HO	Hemerocallis x 'Stella in Red' / Stella de Oro Daylily	2 gal			58
LA	Lavandula angustifolia 'Imperial Gem' / English Lavender	2 gal			42

LANDSCAPE KEYED NOTES

SYMBOL	DESCRIPTION	DETAIL
P-01	INSTALL BARK MULCH RING PER DETAIL. TYP.	2/L.1.31
P-02	INSTALL LANDSCAPE EDGING PER DETAIL	5/L.1.31
P-03	INSTALL DECIDUOUS TREE PER DETAIL	2/L.1.31
P-04	INSTALL CONIFEROUS TREE PER DETAIL	3/L.1.31

LANDSCAPE GENERAL NOTES

- CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES PRIOR TO INITIATION OF ANY DEMOLITION OR CONSTRUCTION OPERATIONS. ANY DAMAGE TO EXISTING UTILITIES SHALL BE CONTRACTOR'S RESPONSIBILITY.
- ALL PLANT MATERIAL SHALL CONFORM TO THE CURRENT AMERICAN ASSOCIATION OF NURSERYMAN'S NATIONAL STANDARD SPECIFICATIONS.
- ALL PLANT MATERIAL SHALL BE INSTALLED AS PER DETAILS AND CONTRACT SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY ALL QUANTITIES. IN THE CASE OF A DISCREPANCY, THE ILLUSTRATED LOCATIONS SHALL DICTATE COUNT.
- CONTRACTOR SHALL COORDINATE PLANTING WITH IRRIGATION CONTRACTOR.
- NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT THE CONSENT OF THE LANDSCAPE ARCHITECT.
- ALL CONIFER TREES WITHOUT STRONG SINGLE LEADER WILL BE REJECTED.
- SEE LAYOUT PLAN, SHEET L1.10 FOR SITE SURFACE FINISHES.
- LANDSCAPE CONTRACTOR TO MEET WITH OWNER AND MAINTENANCE DIRECTOR IN A PRE CONSTRUCTION MEETING PRIOR TO STARTING ANY INSTALLATION.

LANDSCAPE CODE REQUIREMENTS

**ZONE: BUSINESS RESEARCH PARK (B-RP)**

All areas not covered by improvements are to be landscaped.

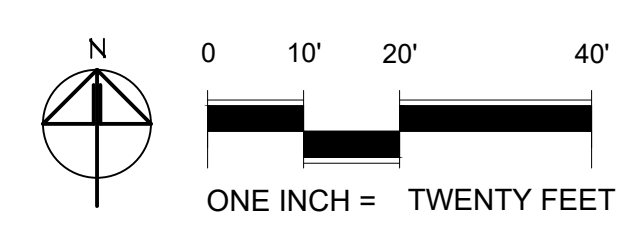
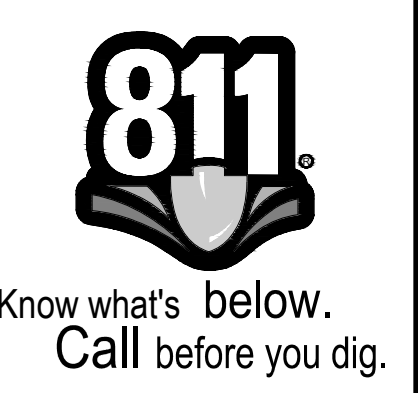
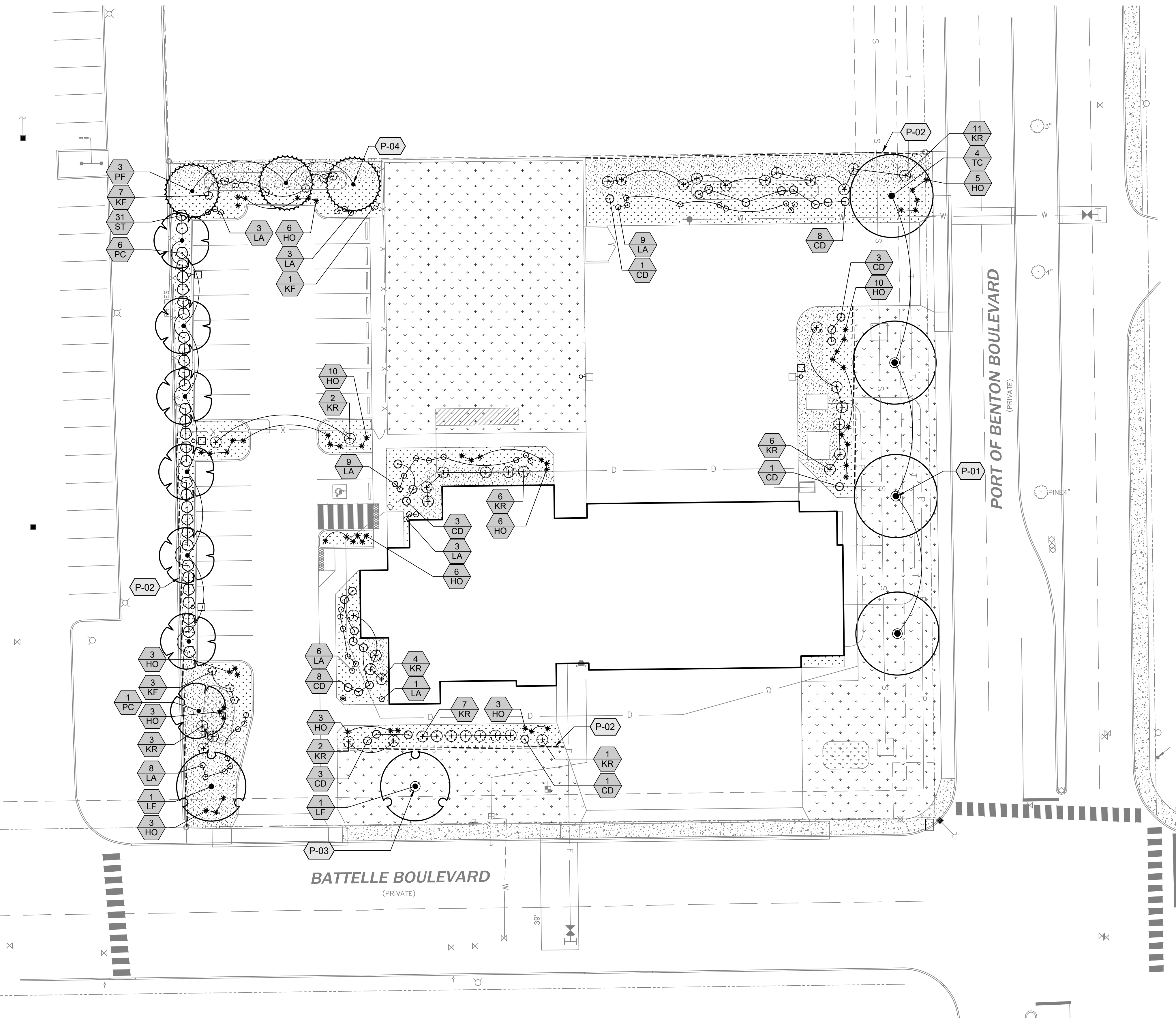
Underground irrigation of all landscape required.

**Interior Coverage.** A minimum of five percent of the interior of a parking facility & 1 Tree/ 100 SF.

Required landscape area = 514 SF  
 Provided landscape area = 766 SF  
 Required tree count = 6  
 Provided tree count = 16

**Perimeter Coverage Adjacent to Abutting Properties:**

Width = 5' continuous screen between 3'- 6' in height  
 Trees = 1/40 L.F.





**MATERIALS KEYING LEGEND**

KEYNOTE NO.	KEYNOTE DESCRIPTION



09/02/2020



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**KEY NOTES**

**GENERAL NOTES**

- SEE OTHER 'A' SERIES SHEETS FOR INFORMATION NOT INDICATED HERE
- SEE MECH. ELECTRICAL, STRUCTURAL, AND OTHER SYSTEMS DRAWINGS FOR INFORMATION NOT INDICATED HERE

**MATERIAL LEGEND**

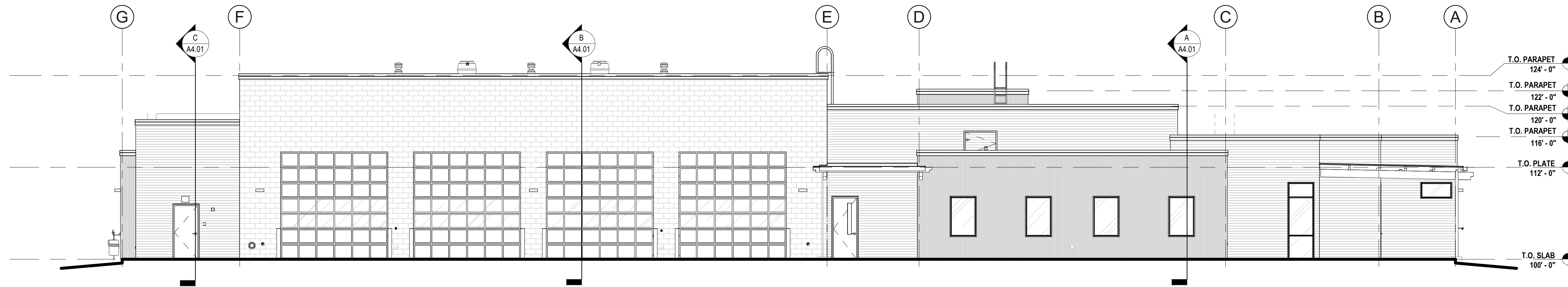
	074213.13 PRE-FINISHED BOX RIB METAL SIDING
	074213.13 PRE-FINISHED FLUSH PANEL VERTICAL SIDING
	042000 CMU

**RICHLAND FIRE STATION 75**  
**RICHLAND FIRE STATION**  
**RICHLAND, WA 99354**

EXTERIOR ELEVATIONS

PROJECT NO.	20006
DESIGNED BY	MV KP
DRAWN BY	RM
ISSUE DATE	09/02/2020
PHASE	PERMIT SET
CHECKED BY	RJ
REVISION	
SHEET NO.	

**A3.01**



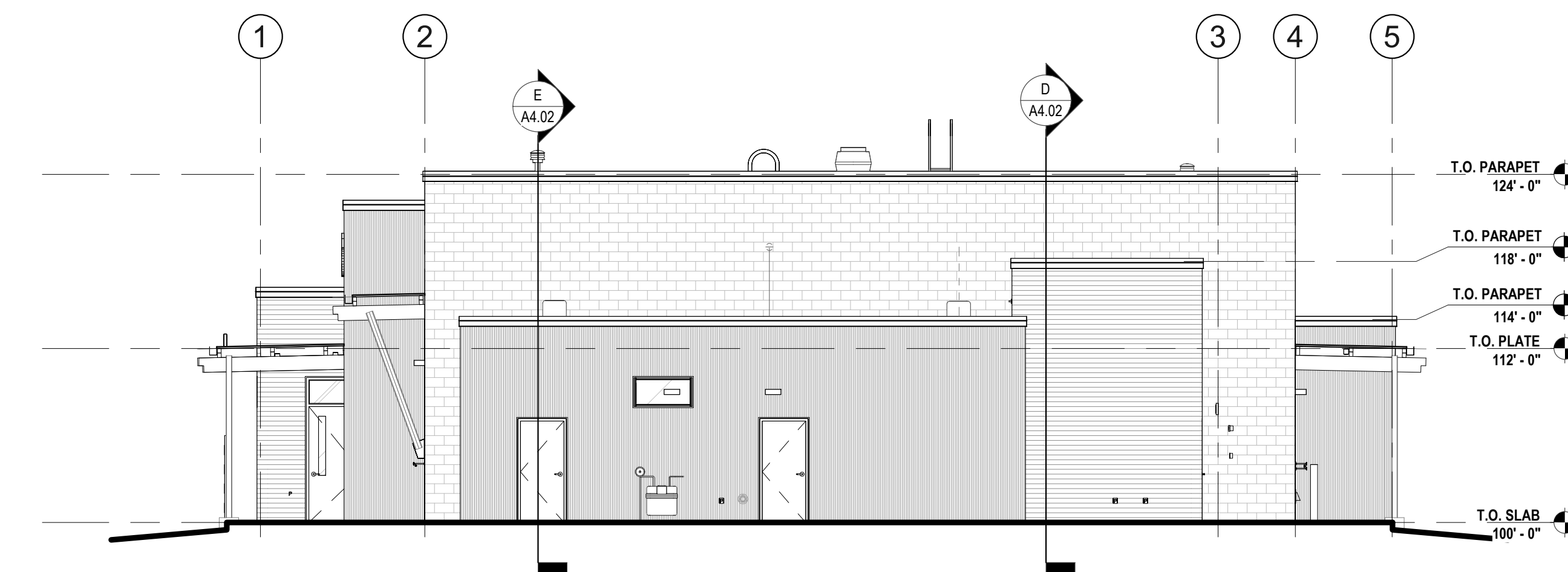
**N EXTERIOR ELEVATIONS - NORTH OVERALL**

SCALE: 1/8" = 1'-0"



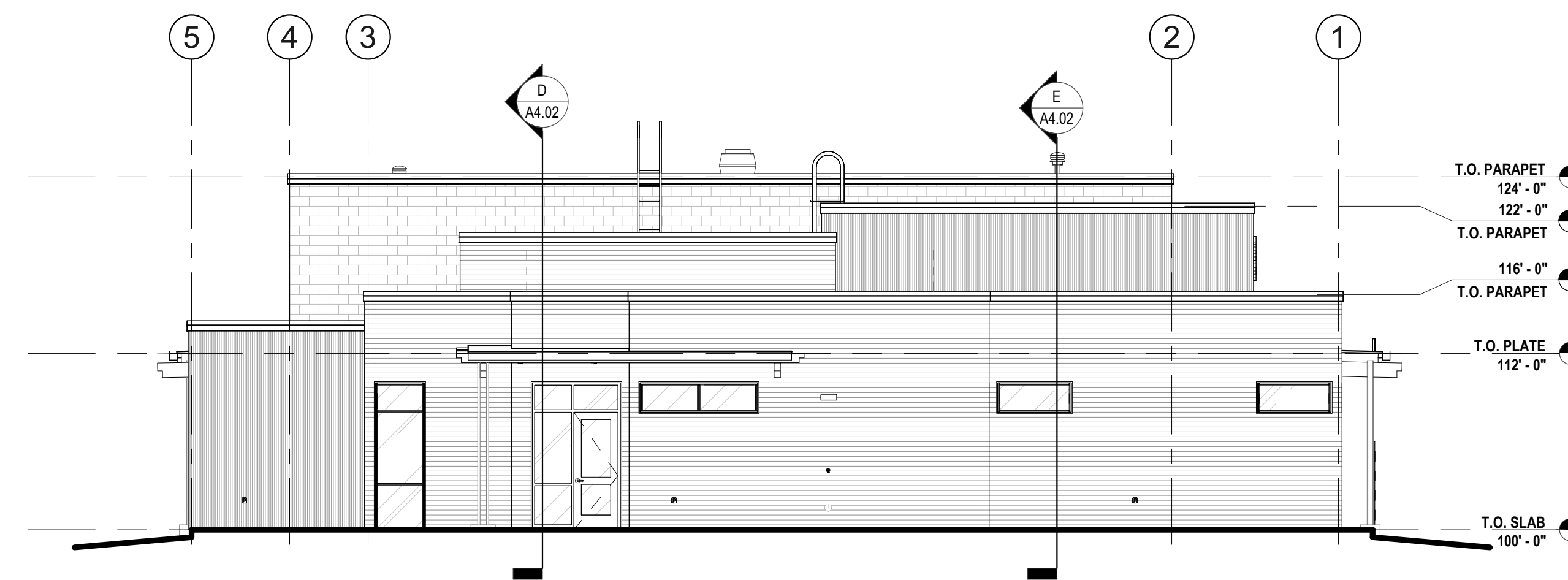
**S EXTERIOR ELEVATIONS - SOUTH OVERALL**

SCALE: 1/8" = 1'-0"



**E EXTERIOR ELEVATIONS - EAST OVERALL**

SCALE: 1/8" = 1'-0"



**W EXTERIOR ELEVATIONS - WEST OVERALL**

SCALE: 1/8" = 1'-0"



## ***Stormwater Technical Information Report***

*PREPARED FOR:*

Architects West  
210 E Lakeside Ave  
Coeur d'Alene, ID 83814

*PROJECT:*

Richland Public Safety Building 75  
Undetermined  
Richland, WA 99352  
2200084.12

*PREPARED BY:*

Katie Buckner  
Project Engineer

*REVIEWED BY:*

Erick Fitzpatrick, PE  
Associate Principal

*DATE:*

August 2020

## **Stormwater Technical Information Report**

*PREPARED FOR:*

Architects West  
210 E Lakeside Ave  
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*PROJECT:*

Richland Public Safety Building 75  
Undetermined  
Richland, WA 99352  
2200084.12

*PREPARED BY:*

Katie Buckner  
Project Engineer

*REVIEWED BY:*

Erick Fitzpatrick, PE  
Associate Principal

*DATE:*

August 2020



09/04/2020

I hereby state that this [Stormwater Technical Information Report](#) for the [Richland Public Safety Building 75](#) project has been prepared by me or under my supervision, and meets the standard of care and expertise that is usual and customary in this community for professional engineers. I understand [City of Richland](#) does not and will not assume liability for the sufficiency, suitability, or performance of drainage facilities prepared by me.

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# ***Appendices***

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## **Appendix A**

### **Figures**

EX-A.....Basin Map

## **Appendix B**

### **Stormwater Calculations**

## **Appendix C**

### **Subsurface Information**

## 1.0 Project Overview

### 1.1 Purpose and Scope

This report accompanies the **Permit Set** for the Richland Public Safety Building 75 project. The total proposed parcel area is approximately 1.5 acres. The project site is located in the west half of the southeast corner of Section 14, Township 10 North, Range 28 East, Willamette Meridian, In Richland, Benton County, Washington.

The proposed project entails the construction of Richland Public Safety Building 75, an approximately 10,360-square foot building. Additional components include concrete driveways, curbing, asphalt parking, sidewalks, landscaping, utilities and stormwater facilities.

The proposed onsite stormwater management system will include roof drains, a gravel infiltration trench, and 4 infiltration ponds. A detailed description of the onsite stormwater management system is provided in Section 4.0 of this report.

The stormwater design for this project utilizes the methodology and criteria established by the *Stormwater Management Manual for Eastern Washington (SWMMEW)* as adopted by the City of Richland. This report documents that the proposed project complies with the requirements of the *SWMMEW* & City of Richland Standards.

### 1.2 Existing Conditions

#### 1.2.1 Existing Conditions

The project area is currently unimproved and covered in minimal vegetation and old deteriorated asphalt. Various unknown utilities exist on site.

#### 1.2.2 Topography and Drainage

The existing ground generally slopes from West to East.

The existing site is generally flat. Battelle Boulevard, south of the site, slopes from west to east as well as Port of Benton Boulevard, east of the site. No drainage features are present on site. There are no signs of run-off or run-on.

The Natural Resources Conservation Service (NRCS) soils map identifies the site soils as detailed below.

***The following description was pulled from the NRCS soils map webpage.***

#### **Map Unit: BIA – Burbank loamy fine sand gravelly substratum, 0 to 2 percent slopes**

The Burbank component makes up 90 percent of this map unit. Slopes are 0 to 2 percent. This component is on terraces. The parent material consists of mixed alluvium and/or eolian deposits over gravelly and stony alluvium. Depth to root restrictive layer is greater than 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Non irrigated land capability classification is 6e. Irrigated land capability classification is 4s. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 8 percent.

**Map Unit: FeA – Finley fine sandy loam, 0 to 2 percent slopes**

The Finley component makes up 90 percent of this map unit. Slopes are 0 to 2 percent. This component is on terraces. The parent material consists of mixed alluvium. Depth to root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water Movement in the most restrictive layer is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Non irrigated land capability classification is 6e. Irrigated land capability classification is 3e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 15 percent. There are no saline horizons within 30 inches of the soil surface.



**Figure 1 - NRCS Soil Map**

The map above is from the Natural Resources Conservation Service website and can be accessed using the following link (<http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>).

### **1.2.3 Critical Areas**

To our knowledge, no critical areas, wetlands, or streams are identified on or directly adjacent to the project site.

### **1.3 Post-Development Conditions**

This project site, as described in Section 1.1, will include a combination of building, sidewalk, landscape areas, parking, driveways, and stormwater facilities. Refer to the Basin Map in Appendix A.

## **2.0 Core Elements**

### **2.1 Project Definition and Exemption**

Based on the *SWMM* Core Elements 1 through 8 are applicable to the project.

### **2.2 Core Element #1: Preparation of a Stormwater Site Plan**

This report and the engineering plans meet the requirement for a Stormwater Site Plan.

### **2.3 Core Element #2: Construction Stormwater Pollution Prevention**

A Construction Stormwater Pollution Prevention Plan (SWPPP) is not needed. All stormwater will be contained on site.

### **2.4 Core Element #3: Source Control of Pollution**

There are no known activities associated with the project that would require specific source control Best Management Practices (BMPs).

If source control pollution exists then define the source of the pollution,

### **2.5 Core Element #4: Preservation of Natural Drainage Systems**

The site does not contain any natural drainage systems.

### **2.6 Core Element #5: Runoff Treatment**

*Basic Treatment:* Basic water quality treatment for the project is provided for the site improvements by the infiltration ponds (BMP T5.10) located in four corners of the property.

*Oil Control:* Not Required.

*Phosphorus Treatment:* Not Required.

*Metals Treatment:* Not Required.

### **2.7 Core Element #6: Flow Control**

A Soil Conservation Service (SCS) Type 1A 24-hour design storm with a return frequency of 25 years was used for flow control calculations, according to the City of Richland and Section 2.2.6



of the SWMMEW. The project does not discharge to a stream; therefore, restrictions on the 2-year discharge rate are not applicable.

Onsite stormwater flow control will be provided by infiltration through the infiltration ponds (BMP T5.10). Flow Control analysis has been completed and stormwater calculations are included in Appendix B.

## **2.8 Core Element #7: Operation and Maintenance**

The proposed storm drainage system will be owned, operated and maintained by the City of Richland. An Operations and Maintenance Manual (O&M) will not be provided.

## **2.9 Core Element #8: Local Requirements**

The design meets the City of Richland design guidelines and standards.

## **3.0 Offsite Analysis**

### **3.1 Downstream Analysis**

The stormwater modeling does not indicate offsite runoff discharge during a 25-year design storm; therefore, downstream analysis is not required.

### **3.2 Upstream Analysis**

The project area is not subject to the run-on of stormwater from offsite.

## **4.0 Hydrologic Analysis and Design**

The water quality (WQ) storm is the SCS Type 1A 24-hour storm with a 6-month return frequency per Section 2.7.6 of the *SWMMEW*. The total rainfall depth is calculated according to Section 4.3.7 of the *SWMMEW* as the depth of the 2-year, 24-hour storm multiplied by an adjustment coefficient.

According to Table 4.5,  $C_{WQS}$  is equal to 0.66 for Region 2.

$$P_{WQS} = C_{WQS} (P_{2yr-24hr}) = 0.66(0.8) = 0.53 \text{ inches}$$

A Soil Conservation Service (SCS) Type 1A 24-hour design storm with a return frequency of 25 years was used for flow control calculations, according to Section 2.7.7 of the *SWMMEW*.

An analysis of the stormwater management system is included in Appendix B utilizing the design storm depths listed below.

Methodology:	SCS Curve Number		
Rainfall Distribution:	Type 1A 24-Hour		
Rainfall Depth:	6-month	0.53 inch	Water Quality (WQ)
	2-year	0.8 inch	
	10-year	1.3 inches	
	25-year	1.6 inches	Flow Control
	50-year	1.8 inches	
	100-year	1.8 inches	

#### 4.1 Existing Site Hydrology

All stormwater runoff from the 25-year design storm will be detained onsite; therefore, existing conditions were not modeled.

#### 4.2 Developed Site Hydrology

The stormwater management system was analyzed with Autodesk Storm Sanitary Analysis 2019. The developed site consists of 5 drainage basins tributary to the proposed ponds & gravel trench. A basin map is included in Appendix A. Basin times of concentration are a minimum of 5 minutes. Project hydrology calculations are included as Appendix B. Proposed basin hydrologic information is provided in the following Table 4-1.

**Table 4-1 – Hydrologic Information**

Basin	Pavement / Asphalt	Drives / Walks	Lawn / Landscape	Building
<b>A</b>	9,000 sf	850 sf	10,290 sf	0 sf
<b>B</b>	4,490 sf	600 sf	2,300 sf	0 sf
<b>C</b>	5,400 sf	1,550 sf	2,000 sf	0 sf
<b>D</b>	5,000 sf	330 sf	2,150 sf	0 sf
<b>E</b>	0 sf	0 sf	0 sf	10,360 sf

### 5.0 Treatment Facility Analysis and Design

Basic water quality treatment is provided by BPM T5.10-Infiltration Ponds. The infiltration ponds were sized to contain the water quality design storm with less than 6-inches of ponding. Proposed stormwater facilities will provide treatment of stormwater from new PGIS, as required by the *SWMMEW*. PGIS for this project is considered to consist of the proposed HMA parking areas & concrete walks/drives. The rooftop is considered NPGIS.

Infiltration rates for treatment facilities were set at 6-inches/hour, a safety factor of 3 was applied to the infiltration rate findings of the geotechnical site study conducted by Geo Professional Innovations on April 14<sup>th</sup>, 2020.

## **6.0 Flow Control System**

The following section discusses the conditions assumed and methodology used for stormwater facility sizing. The following is a summary of the assumptions made and data used in flow control calculations.

The four infiltration ponds located across the site are sized to contain the flow control design storm volumes. A grave infiltration trench without perforated pipe is located north of the building to capture and contain runoff generated by the building roof. Calculations are provided in Appendix B.

## **7.0 Conveyance System Analysis and Design**

The only storm lines onsite are roof drains. The largest building onsite is 10,630 square feet, or approximately 0.24 acre. The maximum peak runoff is calculated below.

$$0.50 \text{ cfs} = 0.9 * 2.34 * 0.24 \text{ (per rational method } Q=CIA)$$

The roof drain will be 6 inches.

The maximum capacity of a 6-inch line at 1.0 percent is 0.60 cfs.

## **8.0 Special Reports and Studies**

A Geotechnical Report by Geo Professional Innovation Corporation dated April 14, 2020 is included in Appendix C.

## **9.0 ESC Analysis and Design**

A TESC plan is included with the construction drawings.

## **10.0 Operations and Maintenance Manual**

The proposed storm drainage system will be owned, operated and maintained by the City of Richland. Operation and maintenance of the proposed stormwater runoff management facilities shall be per City of Richland maintenance manual.

## 11.0 Conclusion

This project is designed to meet the requirements of the *SWMMEW*.

This analysis is based on data and records either supplied to or obtained by AHBL, Inc. These documents are referenced within the text of the analysis. The analysis has been prepared utilizing procedures and practices within the standard accepted practices of the industry.

AHBL, Inc.

Katie Buckner  
Project Engineer

KTB/

August 2020

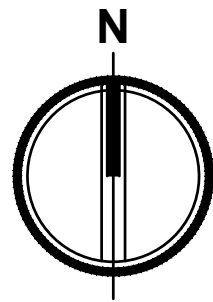
Q:\2020\2200084\10\_CIVNON\_CAD\REPORT\20200721 Rpt (Station 75 SWMMEW TIR) 2200084

# ***Appendix A***

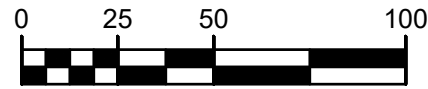
---

## **Figures**

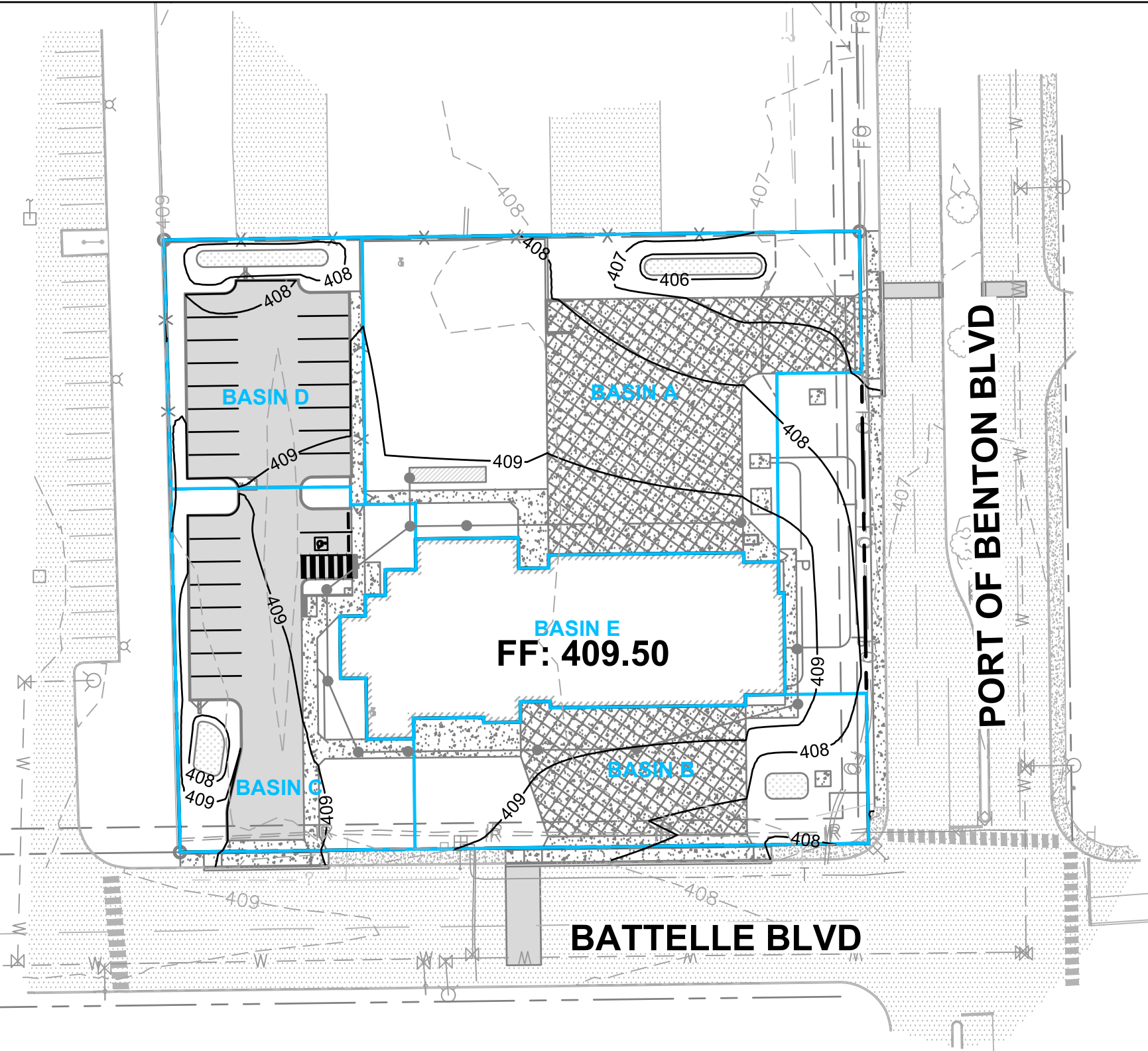
EX-A.....Basin Map



GRAPHIC SCALE



1" = 50 FEET



# ***Appendix B***

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## **Stormwater Calculations**

### Project Description

File Name ..... 20200714 Calc (75 Station Storm) 2200084.10.SPF

### Project Options

Flow Units ..... CFS  
 Elevation Type ..... Elevation  
 Hydrology Method ..... Santa Barbara UH  
 Time of Concentration (TOC) Method ..... User-Defined  
 Link Routing Method ..... Kinematic Wave  
 Enable Overflow Ponding at Nodes ..... YES  
 Skip Steady State Analysis Time Periods ..... YES

### Analysis Options

Start Analysis On ..... May 15, 2020 00:00:00  
 End Analysis On ..... May 16, 2020 00:00:00  
 Start Reporting On ..... May 15, 2020 00:00:00  
 Antecedent Dry Days ..... 0 days  
 Runoff (Dry Weather) Time Step ..... 0 01:00:00 days hh:mm:ss  
 Runoff (Wet Weather) Time Step ..... 0 00:05:00 days hh:mm:ss  
 Reporting Time Step ..... 0 00:05:00 days hh:mm:ss  
 Routing Time Step ..... 30 seconds

### Number of Elements

	Qty
Rain Gages .....	1
Subbasins.....	9
Nodes.....	10
<i>Junctions</i> .....	0
<i>Outfalls</i> .....	5
<i>Flow Diversions</i> .....	0
<i>Inlets</i> .....	0
<i>Storage Nodes</i> .....	5
Links.....	5
<i>Channels</i> .....	0
<i>Pipes</i> .....	5
<i>Pumps</i> .....	0
<i>Orifices</i> .....	0
<i>Weirs</i> .....	0
<i>Outlets</i> .....	0
Pollutants .....	0
Land Uses .....	0

### Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	Richland	Time Series	6Mo 24Hr WQ	Cumulative	inches	None	None	1	0.53	SCS Type IA 24-hr



## Subbasin Summary

SN	Subbasin ID	Area (ft <sup>2</sup> )	Impervious Area (%)	Impervious Area Curve Number	Pervious Area Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ft <sup>3</sup> )	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Basin_A	9850	100	98.00	76.00	0.53	0.34	282	0.02	0 00:05:00
2	Basin_A-Per	10290	0	98.00	79.00	0.53	0.00	0	0.00	0 00:05:00
3	Basin_B	5090	100	98.00	76.00	0.53	0.34	146	0.01	0 00:05:00
4	Basin_B-Per	2300	0	98.00	79.00	0.53	0.00	0	0.00	0 00:05:00
5	Basin_C	6950	100	98.00	76.00	0.53	0.34	199	0.01	0 00:05:00
6	Basin_C-Per	2000	0	98.00	79.00	0.53	0.00	0	0.00	0 00:05:00
7	Basin_D	5330	100	98.00	76.00	0.53	0.34	153	0.01	0 00:05:00
8	Basin_D-Per	2150	0	98.00	79.00	0.53	0.00	0	0.00	0 00:05:00
9	Basin_E	10360	100	98.00	76.00	0.53	0.34	297	0.02	0 00:05:00

### Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft <sup>2</sup> )	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	Basin_A-Out	Outfall	0.00					0.00	0.00					
2	Basin_B-Out	Outfall	0.00					0.00	0.00					
3	Basin_C-Out	Outfall	0.00					0.00	0.00					
4	Basin_D-Out	Outfall	0.00					0.00	0.00					
5	Basin_E-Out	Outfall	0.00					0.00	0.00					
6	Pond_1	Storage Node	0.00	0.90	0.00		0.00	0.02	0.00				0.00	0.00
7	Pond_2	Storage Node	0.00	0.50	0.00		0.00	0.01	0.00				0.00	0.00
8	Pond_3	Storage Node	0.00	0.50	0.00		0.00	0.01	0.00				0.00	0.00
9	Pond_4	Storage Node	0.00	0.50	0.00		0.00	0.01	0.00				0.00	0.00
10	Trench_1	Storage Node	0.00	2.00	0.00		0.00	0.02	0.00				0.00	0.00

## Storage Nodes

### Storage Node : Pond\_1

#### Input Data

Invert Elevation (ft) ..... 0.00  
 Max (Rim) Elevation (ft) ..... 0.90  
 Max (Rim) Offset (ft) ..... 0.90  
 Initial Water Elevation (ft) ..... 0.00  
 Initial Water Depth (ft) ..... 0.00  
 Ponded Area (ft<sup>2</sup>) ..... 0.00  
 Evaporation Loss ..... 0.00

#### Infiltration/Exfiltration

Exfiltration Rate (in/hr) ..... 6.0000

#### Storage Area Volume Curves

Storage Curve : Pond\_1-SS

Stage (ft)	Storage Area (ft <sup>2</sup> )	Storage Volume (ft <sup>3</sup> )
0	290	0.000
0.9	730	459.00

**Storage Node : Pond\_1 (continued)**

**Output Summary Results**

Peak Inflow (cfs) .....	0.02
Peak Lateral Inflow (cfs) .....	0.02
Peak Outflow (cfs) .....	0.00
Peak Exfiltration Flow Rate (cfm) .....	2.42
Max HGL Elevation Attained (ft) .....	0.00
Max HGL Depth Attained (ft) .....	0
Average HGL Elevation Attained (ft) .....	0.00
Average HGL Depth Attained (ft) .....	0
Time of Max HGL Occurrence (days hh:mm) .....	0 00:00
Total Exfiltration Volume (1000-ft <sup>3</sup> ) .....	0.000
Total Flooded Volume (ac-in) .....	0
Total Time Flooded (min) .....	0
Total Retention Time (sec) .....	0.00

**Storage Node : Pond\_2**

**Input Data**

Invert Elevation (ft) ..... 0.00  
 Max (Rim) Elevation (ft) ..... 0.50  
 Max (Rim) Offset (ft) ..... 0.50  
 Initial Water Elevation (ft) ..... 0.00  
 Initial Water Depth (ft) ..... 0.00  
 Ponded Area (ft<sup>2</sup>) ..... 0.00  
 Evaporation Loss ..... 0.00

**Infiltration/Exfiltration**

Exfiltration Rate (in/hr) ..... 6.0000

**Storage Area Volume Curves**

Storage Curve : Pond\_2-SS

Stage (ft)	Storage Area (ft <sup>2</sup> )	Storage Volume (ft <sup>3</sup> )
0	320	0.000
0.5	500	205.00

**Storage Node : Pond\_2 (continued)**

**Output Summary Results**

Peak Inflow (cfs) .....	0.01
Peak Lateral Inflow (cfs) .....	0.01
Peak Outflow (cfs) .....	0.00
Peak Exfiltration Flow Rate (cfm) .....	2.67
Max HGL Elevation Attained (ft) .....	0.00
Max HGL Depth Attained (ft) .....	0
Average HGL Elevation Attained (ft) .....	0.00
Average HGL Depth Attained (ft) .....	0
Time of Max HGL Occurrence (days hh:mm) .....	0 00:00
Total Exfiltration Volume (1000-ft <sup>3</sup> ) .....	0.000
Total Flooded Volume (ac-in) .....	0
Total Time Flooded (min) .....	0
Total Retention Time (sec) .....	0.00

**Storage Node : Pond\_3**

**Input Data**

Invert Elevation (ft) ..... 0.00  
 Max (Rim) Elevation (ft) ..... 0.50  
 Max (Rim) Offset (ft) ..... 0.50  
 Initial Water Elevation (ft) ..... 0.00  
 Initial Water Depth (ft) ..... 0.00  
 Ponded Area (ft<sup>2</sup>) ..... 0.00  
 Evaporation Loss ..... 0.00

**Infiltration/Exfiltration**

Exfiltration Rate (in/hr) ..... 6.0000

**Storage Area Volume Curves**

Storage Curve : Pond\_3-SS

Stage (ft)	Storage Area (ft <sup>2</sup> )	Storage Volume (ft <sup>3</sup> )
0	200	0.000
0.5	290	122.50

**Storage Node : Pond\_3 (continued)**

**Output Summary Results**

Peak Inflow (cfs) .....	0.01
Peak Lateral Inflow (cfs) .....	0.01
Peak Outflow (cfs) .....	0.00
Peak Exfiltration Flow Rate (cfm) .....	1.67
Max HGL Elevation Attained (ft) .....	0.00
Max HGL Depth Attained (ft) .....	0
Average HGL Elevation Attained (ft) .....	0.00
Average HGL Depth Attained (ft) .....	0
Time of Max HGL Occurrence (days hh:mm) .....	0 00:00
Total Exfiltration Volume (1000-ft <sup>3</sup> ) .....	0.000
Total Flooded Volume (ac-in) .....	0
Total Time Flooded (min) .....	0
Total Retention Time (sec) .....	0.00



**Storage Node : Pond\_4**

**Input Data**

Invert Elevation (ft) ..... 0.00  
 Max (Rim) Elevation (ft) ..... 0.50  
 Max (Rim) Offset (ft) ..... 0.50  
 Initial Water Elevation (ft) ..... 0.00  
 Initial Water Depth (ft) ..... 0.00  
 Ponded Area (ft<sup>2</sup>) ..... 0.00  
 Evaporation Loss ..... 0.00

**Infiltration/Exfiltration**

Exfiltration Rate (in/hr) ..... 6.0000

**Storage Area Volume Curves**

Storage Curve : Pond\_4-SS

Stage (ft)	Storage Area (ft <sup>2</sup> )	Storage Volume (ft <sup>3</sup> )
0	150	0.000
0.5	400	137.50

**Storage Node : Pond\_4 (continued)**

**Output Summary Results**

Peak Inflow (cfs) .....	0.01
Peak Lateral Inflow (cfs) .....	0.01
Peak Outflow (cfs) .....	0.00
Peak Exfiltration Flow Rate (cfm) .....	1.25
Max HGL Elevation Attained (ft) .....	0.00
Max HGL Depth Attained (ft) .....	0
Average HGL Elevation Attained (ft) .....	0.00
Average HGL Depth Attained (ft) .....	0
Time of Max HGL Occurrence (days hh:mm) .....	0 00:00
Total Exfiltration Volume (1000-ft³) .....	0.000
Total Flooded Volume (ac-in) .....	0
Total Time Flooded (min) .....	0
Total Retention Time (sec) .....	0.00

**Storage Node : Trench\_1**

**Input Data**

Invert Elevation (ft) ..... 0.00  
 Max (Rim) Elevation (ft) ..... 2.00  
 Max (Rim) Offset (ft) ..... 2.00  
 Initial Water Elevation (ft) ..... 0.00  
 Initial Water Depth (ft) ..... 0.00  
 Poned Area (ft<sup>2</sup>) ..... 0.00  
 Evaporation Loss ..... 0.00

**Infiltration/Exfiltration**

Exfiltration Rate (in/hr) ..... 12.0000

**Storage Area Volume Curves**

Storage Curve : Trench\_1-SS

Stage (ft)	Storage Area (ft <sup>2</sup> )	Storage Volume (ft <sup>3</sup> )
0	72.0000	0.000
0.5	72.0000	36.00
1	72.0000	72.00
1.5	72.0000	108.00
2	72.0000	144.00

**Storage Node : Trench\_1 (continued)**

**Output Summary Results**

Peak Inflow (cfs) .....	0.02
Peak Lateral Inflow (cfs) .....	0.02
Peak Outflow (cfs) .....	0.00
Peak Exfiltration Flow Rate (cfm) .....	1.20
Max HGL Elevation Attained (ft) .....	0.00
Max HGL Depth Attained (ft) .....	0
Average HGL Elevation Attained (ft) .....	0.00
Average HGL Depth Attained (ft) .....	0
Time of Max HGL Occurrence (days hh:mm) .....	0 08:01
Total Exfiltration Volume (1000-ft <sup>3</sup> ) .....	0.015
Total Flooded Volume (ac-in) .....	0
Total Time Flooded (min) .....	0
Total Retention Time (sec) .....	0.00

### Project Description

File Name ..... 20200714 Calc (75 Station Storm) 2200084.10.SPF

### Project Options

Flow Units ..... CFS  
 Elevation Type ..... Elevation  
 Hydrology Method ..... Santa Barbara UH  
 Time of Concentration (TOC) Method ..... User-Defined  
 Link Routing Method ..... Kinematic Wave  
 Enable Overflow Ponding at Nodes ..... YES  
 Skip Steady State Analysis Time Periods ..... YES

### Analysis Options

Start Analysis On ..... May 15, 2020 00:00:00  
 End Analysis On ..... May 16, 2020 00:00:00  
 Start Reporting On ..... May 15, 2020 00:00:00  
 Antecedent Dry Days ..... 0 days  
 Runoff (Dry Weather) Time Step ..... 0 01:00:00 days hh:mm:ss  
 Runoff (Wet Weather) Time Step ..... 0 00:05:00 days hh:mm:ss  
 Reporting Time Step ..... 0 00:05:00 days hh:mm:ss  
 Routing Time Step ..... 30 seconds

### Number of Elements

	Qty
Rain Gages .....	1
Subbasins.....	9
Nodes.....	10
<i>Junctions</i> .....	0
<i>Outfalls</i> .....	5
<i>Flow Diversions</i> .....	0
<i>Inlets</i> .....	0
<i>Storage Nodes</i> .....	5
Links.....	5
<i>Channels</i> .....	0
<i>Pipes</i> .....	5
<i>Pumps</i> .....	0
<i>Orifices</i> .....	0
<i>Weirs</i> .....	0
<i>Outlets</i> .....	0
Pollutants .....	0
Land Uses .....	0

### Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	Richland	Time Series	25Yr 24Hr FC	Cumulative	inches	None	None	25	1.60	SCS Type IA 24-hr

## Subbasin Summary

SN	Subbasin ID	Area (ft <sup>2</sup> )	Impervious Area (%)	Impervious Curve Number	Pervious Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ft <sup>3</sup> )	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Basin_A	9850	100	98.00	76.00	1.60	1.38	1129	0.08	0 00:05:00
2	Basin_A-Per	10290	0	98.00	79.00	1.60	0.30	261	0.01	0 00:05:00
3	Basin_B	5090	100	98.00	76.00	1.60	1.38	583	0.04	0 00:05:00
4	Basin_B-Per	2300	0	98.00	79.00	1.60	0.30	58	0.00	0 00:05:00
5	Basin_C	6950	100	98.00	76.00	1.60	1.38	796	0.06	0 00:05:00
6	Basin_C-Per	2000	0	98.00	79.00	1.60	0.30	51	0.00	0 00:05:00
7	Basin_D	5330	100	98.00	76.00	1.60	1.38	611	0.04	0 00:05:00
8	Basin_D-Per	2150	0	98.00	79.00	1.60	0.30	54	0.00	0 00:05:00
9	Basin_E	10360	100	98.00	76.00	1.60	1.38	1187	0.08	0 00:05:00

**Node Summary**

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft <sup>2</sup> )	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	Basin_A-Out	Outfall	0.00					0.00	0.00					
2	Basin_B-Out	Outfall	0.00					0.00	0.00					
3	Basin_C-Out	Outfall	0.00					0.00	0.00					
4	Basin_D-Out	Outfall	0.00					0.00	0.00					
5	Basin_E-Out	Outfall	0.00					0.00	0.00					
6	Pond_1	Storage Node	0.00	0.90	0.00		0.00	0.09	0.18				0.00	0.00
7	Pond_2	Storage Node	0.00	0.50	0.00		0.00	0.04	0.00				0.00	0.00
8	Pond_3	Storage Node	0.00	0.50	0.00		0.00	0.06	0.20				0.00	0.00
9	Pond_4	Storage Node	0.00	0.50	0.00		0.00	0.04	0.13				0.00	0.00
10	Trench_1	Storage Node	0.00	2.00	0.00		0.00	0.08	1.68				0.00	0.00

## Storage Nodes

### Storage Node : Pond\_1

#### Input Data

Invert Elevation (ft) ..... 0.00  
 Max (Rim) Elevation (ft) ..... 0.90  
 Max (Rim) Offset (ft) ..... 0.90  
 Initial Water Elevation (ft) ..... 0.00  
 Initial Water Depth (ft) ..... 0.00  
 Ponded Area (ft<sup>2</sup>) ..... 0.00  
 Evaporation Loss ..... 0.00

#### Infiltration/Exfiltration

Exfiltration Rate (in/hr) ..... 6.0000

#### Storage Area Volume Curves

Storage Curve : Pond\_1-SS

Stage (ft)	Storage Area (ft <sup>2</sup> )	Storage Volume (ft <sup>3</sup> )
0	290	0.000
0.9	730	459.00



**Storage Node : Pond\_1 (continued)**

**Output Summary Results**

Peak Inflow (cfs) .....	0.09
Peak Lateral Inflow (cfs) .....	0.09
Peak Outflow (cfs) .....	0.00
Peak Exfiltration Flow Rate (cfm) .....	3.15
Max HGL Elevation Attained (ft) .....	0.18
Max HGL Depth Attained (ft) .....	0.18
Average HGL Elevation Attained (ft) .....	0.01
Average HGL Depth Attained (ft) .....	0.01
Time of Max HGL Occurrence (days hh:mm) .....	0 08:15
Total Exfiltration Volume (1000-ft <sup>3</sup> ) .....	0.323
Total Flooded Volume (ac-in) .....	0
Total Time Flooded (min) .....	0
Total Retention Time (sec) .....	0.00

**Storage Node : Pond\_2**

**Input Data**

Invert Elevation (ft) ..... 0.00  
 Max (Rim) Elevation (ft) ..... 0.50  
 Max (Rim) Offset (ft) ..... 0.50  
 Initial Water Elevation (ft) ..... 0.00  
 Initial Water Depth (ft) ..... 0.00  
 Ponded Area (ft<sup>2</sup>) ..... 0.00  
 Evaporation Loss ..... 0.00

**Infiltration/Exfiltration**

Exfiltration Rate (in/hr) ..... 6.0000

**Storage Area Volume Curves**

Storage Curve : Pond\_2-SS

Stage (ft)	Storage Area (ft <sup>2</sup> )	Storage Volume (ft <sup>3</sup> )
0	320	0.000
0.5	500	205.00

**Storage Node : Pond\_2 (continued)**

**Output Summary Results**

Peak Inflow (cfs) .....	0.04
Peak Lateral Inflow (cfs) .....	0.04
Peak Outflow (cfs) .....	0.00
Peak Exfiltration Flow Rate (cfm) .....	2.67
Max HGL Elevation Attained (ft) .....	0.00
Max HGL Depth Attained (ft) .....	0
Average HGL Elevation Attained (ft) .....	0.00
Average HGL Depth Attained (ft) .....	0
Time of Max HGL Occurrence (days hh:mm) .....	0 00:00
Total Exfiltration Volume (1000-ft <sup>3</sup> ) .....	0.000
Total Flooded Volume (ac-in) .....	0
Total Time Flooded (min) .....	0
Total Retention Time (sec) .....	0.00

**Storage Node : Pond\_3**

**Input Data**

Invert Elevation (ft) ..... 0.00  
 Max (Rim) Elevation (ft) ..... 0.50  
 Max (Rim) Offset (ft) ..... 0.50  
 Initial Water Elevation (ft) ..... 0.00  
 Initial Water Depth (ft) ..... 0.00  
 Ponded Area (ft<sup>2</sup>) ..... 0.00  
 Evaporation Loss ..... 0.00

**Infiltration/Exfiltration**

Exfiltration Rate (in/hr) ..... 6.0000

**Storage Area Volume Curves**

Storage Curve : Pond\_3-SS

Stage (ft)	Storage Area (ft <sup>2</sup> )	Storage Volume (ft <sup>3</sup> )
0	200	0.000
0.5	290	122.50

**Storage Node : Pond\_3 (continued)****Output Summary Results**

Peak Inflow (cfs) .....	0.06
Peak Lateral Inflow (cfs) .....	0.06
Peak Outflow (cfs) .....	0.00
Peak Exfiltration Flow Rate (cfm) .....	1.98
Max HGL Elevation Attained (ft) .....	0.20
Max HGL Depth Attained (ft) .....	0.2
Average HGL Elevation Attained (ft) .....	0.01
Average HGL Depth Attained (ft) .....	0.01
Time of Max HGL Occurrence (days hh:mm) .....	0 08:16
Total Exfiltration Volume (1000-ft <sup>3</sup> ) .....	0.213
Total Flooded Volume (ac-in) .....	0
Total Time Flooded (min) .....	0
Total Retention Time (sec) .....	0.00

**Storage Node : Pond\_4**

**Input Data**

Invert Elevation (ft) ..... 0.00  
Max (Rim) Elevation (ft) ..... 0.50  
Max (Rim) Offset (ft) ..... 0.50  
Initial Water Elevation (ft) ..... 0.00  
Initial Water Depth (ft) ..... 0.00  
Ponded Area (ft<sup>2</sup>) ..... 0.00  
Evaporation Loss ..... 0.00

**Infiltration/Exfiltration**

Exfiltration Rate (in/hr) ..... 6.0000

**Storage Area Volume Curves**

Storage Curve : Pond\_4-SS

Stage (ft)	Storage Area (ft <sup>2</sup> )	Storage Volume (ft <sup>3</sup> )
0	150	0.000
0.5	400	137.50

**Storage Node : Pond\_4 (continued)**

**Output Summary Results**

Peak Inflow (cfs) .....	0.04
Peak Lateral Inflow (cfs) .....	0.04
Peak Outflow (cfs) .....	0.00
Peak Exfiltration Flow Rate (cfm) .....	1.80
Max HGL Elevation Attained (ft) .....	0.13
Max HGL Depth Attained (ft) .....	0.13
Average HGL Elevation Attained (ft) .....	0.00
Average HGL Depth Attained (ft) .....	0
Time of Max HGL Occurrence (days hh:mm) .....	0 08:10
Total Exfiltration Volume (1000-ft <sup>3</sup> ) .....	0.139
Total Flooded Volume (ac-in) .....	0
Total Time Flooded (min) .....	0
Total Retention Time (sec) .....	0.00

**Storage Node : Trench\_1**

**Input Data**

Invert Elevation (ft) ..... 0.00  
 Max (Rim) Elevation (ft) ..... 2.00  
 Max (Rim) Offset (ft) ..... 2.00  
 Initial Water Elevation (ft) ..... 0.00  
 Initial Water Depth (ft) ..... 0.00  
 Ponded Area (ft<sup>2</sup>) ..... 0.00  
 Evaporation Loss ..... 0.00

**Infiltration/Exfiltration**

Exfiltration Rate (in/hr) ..... 12.0000

**Storage Area Volume Curves**

Storage Curve : Trench\_1-SS

Stage	Storage Area	Storage Volume
(ft)	(ft <sup>2</sup> )	(ft <sup>3</sup> )
0	72.0000	0.000
0.5	72.0000	36.00
1	72.0000	72.00
1.5	72.0000	108.00
2	72.0000	144.00



**Storage Node : Trench\_1 (continued)****Output Summary Results**

Peak Inflow (cfs) .....	0.08
Peak Lateral Inflow (cfs) .....	0.08
Peak Outflow (cfs) .....	0.00
Peak Exfiltration Flow Rate (cfm) .....	2.15
Max HGL Elevation Attained (ft) .....	1.68
Max HGL Depth Attained (ft) .....	1.68
Average HGL Elevation Attained (ft) .....	0.18
Average HGL Depth Attained (ft) .....	0.18
Time of Max HGL Occurrence (days hh:mm) .....	0 08:27
Total Exfiltration Volume (1000-ft <sup>3</sup> ) .....	0.590
Total Flooded Volume (ac-in) .....	0
Total Time Flooded (min) .....	0
Total Retention Time (sec) .....	0.00

# ***Appendix C***

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## **Geotechnical Report**