



PLOT SETTINGS: Adobe PDF, Ledger, Portrait, 1:2, WE APWA\_UNSCREENED.ctb  
 W:\2018\2018-078 FERDALE RMG VELLEMA PIT RECLAMATION PLAN\DWG\2018-078\_V2019\_C1.1 EXISTING CONDITIONS.DWG - 2/27/2019 2:20 PM - Jeff Smith

**SURVEY NOTES**

1. THIS SURVEY MEETS OR EXCEEDS THE METHODOLOGY AND ACCURACY REQUIREMENTS FOR A U.S.A.C.E CLASS I HYDROGRAPHIC SURVEY AND MEETS OR EXCEEDS STANDARDS SET FORTH BY WAC 332-130-090. THIS BATHYMETRIC AND TOPOGRAPHIC SURVEY WAS PERFORMED IN MAY OF 2018, AND REPRESENTS THE CONDITIONS EXISTING AT THAT TIME. INITIAL CONTROL WAS ESTABLISHED USING NETWORKED REAL-TIME KINEMATIC POSITIONING. BATHYMETRIC SURVEY DATA ACQUISITION WAS PERFORMED USING TRIMBLE R7 SURVEY-GRADE GPS RECEIVERS, OPERATING IN REAL-TIME KINEMATIC MODE. UPLAND TOPOGRAPHY WAS ACQUIRED USING A TRIMBLE S6 3-SECOND ROBOTIC TOTAL STATION AND TRIMBLE R7 RTK GPS RECEIVERS.
2. HYDROGRAPHIC/BATHYMETRIC DATA WAS COLLECTED USING TRIMBLE R7 SURVEY-GRADE GPS RECEIVERS OPERATING IN REAL-TIME KINEMATIC MODE, FOR CONTROL OF POSITION, HEADING, AND TRANSDUCER ELEVATION. DEPTH SOUNDINGS WERE ACQUIRED USING AN OHMEX SONAR MITE SURVEY-GRADE FATHOMETER OPERATING AT A FREQUENCY OF 210kHz, WITH A 2hz SAMPLE RATE. HYDROGRAPHIC DATA WAS COMPILED, ANALYZED, VALIDATED, AND THINNED USING HYPACK 2008 HYDROGRAPHIC MAPPING SOFTWARE. FINAL ADJUSTMENTS TO CORRECT FOR TRANSDUCER REFERENCE FACTOR, WERE PERFORMED USING CIVIL3D CIVIL ENGINEERING SOFTWARE.
3. QUALITY CONTROL BARCHECKS FOR THIS SURVEY WERE PERFORMED AT THE BEGINNING AND END OF SURVEY DATA COLLECTION. DIRECT-MEASURE GROUND TRUTH AS MEASURED AGAINST CONVERTED SOUNDING DATA WAS COLLECTED AT A VARIETY OF DEPTHS, AND LOCATIONS. VARIATION BETWEEN CONVENTIONAL AS-BUILT VALUE AND BATHYMETRIC SURVEY DATA WAS FOUND TO BE LESS THAN OR EQUAL TO 0.50'.
4. THIS SURVEY IS INTENDED TO ACCURATELY REPRESENT THE SUBMERGED AND EXPOSED TOPOGRAPHY WITHIN THE GRAVEL PIT ALONG WITH THE AS-BUILT LOCATION OF PROXIMATE UPLANDS APPURTENANCES.
5. MONUMENTATION SHOWN HEREON WAS RECOVERED DURING THE COURSE OF THIS SURVEY, UNLESS OTHERWISE NOTED.
6. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT.

**SURVEYOR'S CERTIFICATE**

I HEREBY CERTIFY THAT I AM A LICENSED LAND SURVEYOR IN THE STATE OF WASHINGTON, THAT THIS MAP IS BASED ON AN ACTUAL FIELD SURVEY DONE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT ALL DATA SHOWN HEREON ACTUALLY EXISTS IN THE LOCATIONS SHOWN AT THE TIME OF THIS SURVEY. THIS TOPOGRAPHIC MAP WAS DONE AT THE REQUEST OF FERDALE READY MIX IN 2018.

J. THOMAS BREWSTER, P.L.S. NO. 44335 DATE \_\_\_\_\_

**SURVEY CONTROL POINTS (NAD83/11, NAVD88)**

POINT	NORTHING	EASTING	ELEV.	DESCRIPTION
100	693684.10	1265849.70	110.33	BERNTSEN SPIKE
101	693280.14	1265821.58	104.94	REBAR AND RED PLASTIC CAP
102	692870.80	1265792.75	95.39	REBAR AND RED PLASTIC CAP
104	693318.80	1266311.35	107.13	REBAR AND RED PLASTIC CAP

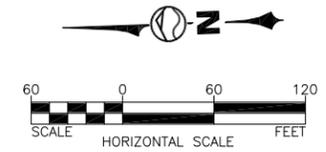
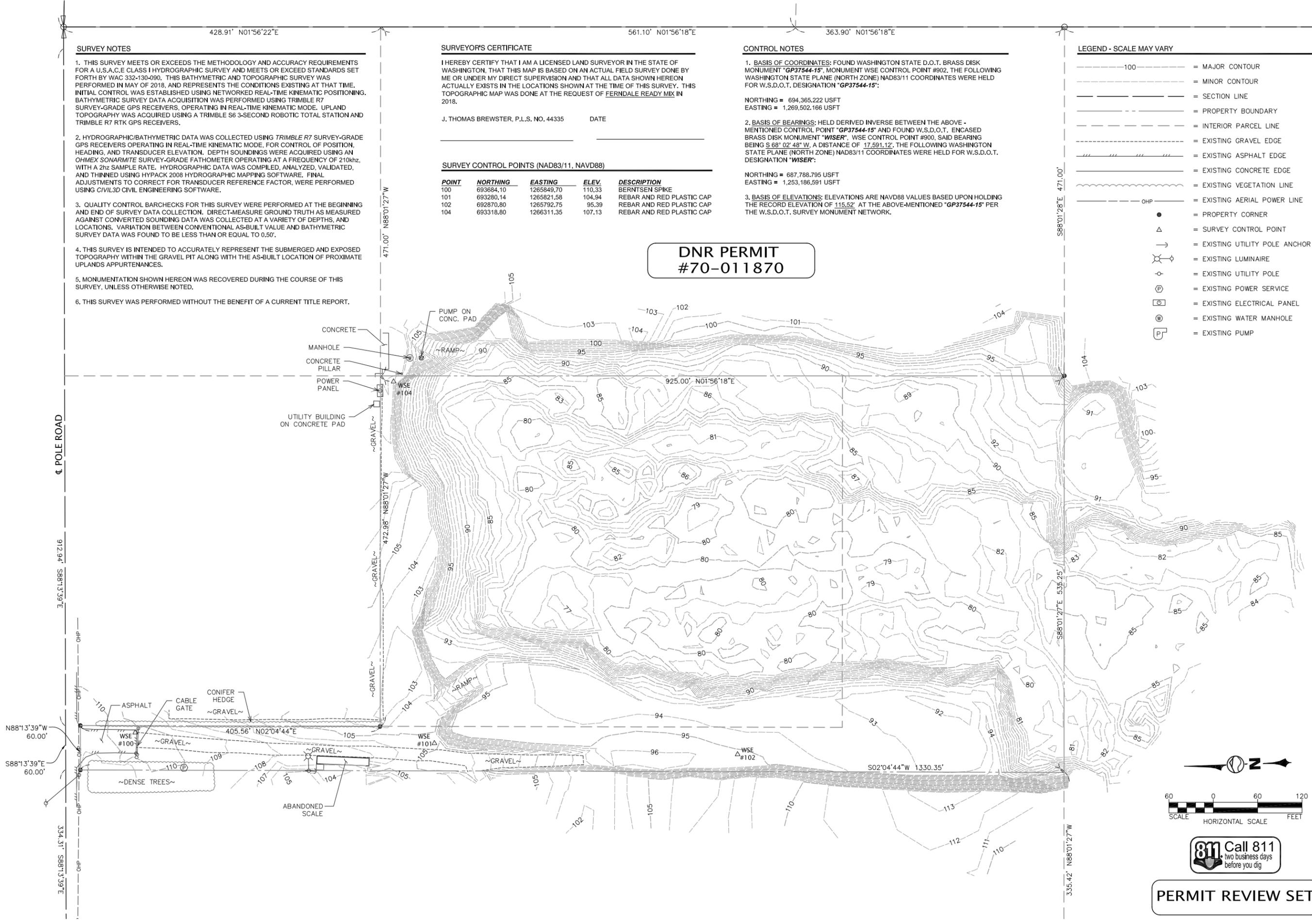
**CONTROL NOTES**

1. BASIS OF COORDINATES: FOUND WASHINGTON STATE D.O.T. BRASS DISK MONUMENT "GP37544-15", MONUMENT WSE CONTROL POINT #902. THE FOLLOWING WASHINGTON STATE PLANE (NORTH ZONE) NAD83/11 COORDINATES WERE HELD FOR W.S.D.O.T. DESIGNATION "GP37544-15":  
 NORTHING = 694,365,222 USFT  
 EASTING = 1,269,502,166 USFT
2. BASIS OF BEARINGS: HELD DERIVED INVERSE BETWEEN THE ABOVE - MENTIONED CONTROL POINT "GP37544-15" AND FOUND W.S.D.O.T. ENCASED BRASS DISK MONUMENT "WISER", WSE CONTROL POINT #900, SAID BEARING BEING S 68° 02' 48" W, A DISTANCE OF 17,591.12'. THE FOLLOWING WASHINGTON STATE PLANE (NORTH ZONE) NAD83/11 COORDINATES WERE HELD FOR W.S.D.O.T. DESIGNATION "WISER":  
 NORTHING = 687,788,795 USFT  
 EASTING = 1,253,186,591 USFT
3. BASIS OF ELEVATIONS: ELEVATIONS ARE NAVD88 VALUES BASED UPON HOLDING THE RECORD ELEVATION OF 115.52' AT THE ABOVE-MENTIONED "GP37544-15" PER THE W.S.D.O.T. SURVEY MONUMENT NETWORK.

**LEGEND - SCALE MAY VARY**

- 100 --- = MAJOR CONTOUR
- --- = MINOR CONTOUR
- = SECTION LINE
- = PROPERTY BOUNDARY
- = INTERIOR PARCEL LINE
- = EXISTING GRAVEL EDGE
- = EXISTING ASPHALT EDGE
- = EXISTING CONCRETE EDGE
- = EXISTING VEGETATION LINE
- OHP --- = EXISTING AERIAL POWER LINE
- = PROPERTY CORNER
- △ = SURVEY CONTROL POINT
- = EXISTING UTILITY POLE ANCHOR
- ⊕ = EXISTING LUMINAIRE
- ⊙ = EXISTING UTILITY POLE
- ⊕ = EXISTING POWER SERVICE
- ⊞ = EXISTING ELECTRICAL PANEL
- ⊕ = EXISTING WATER MANHOLE
- ⊞ = EXISTING PUMP

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**CIVIL STRUCTURAL SURVEY**

**WILSON ENGINEERING**  
 WILSONENGINEERING.COM

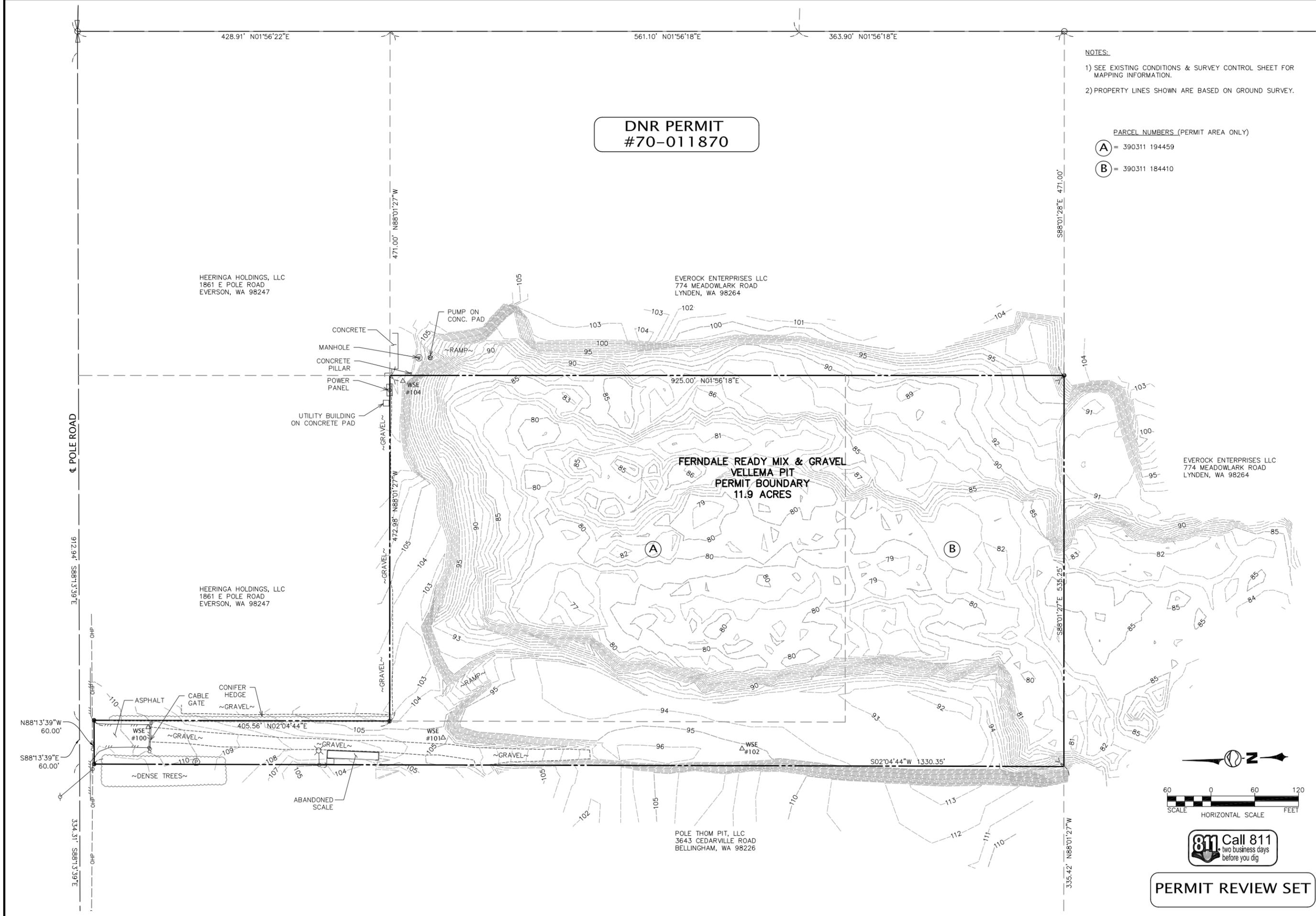
**PRELIMINARY**

DESIGNED BY: FERDALE READY MIX  
 DRAWN BY: WASHINGTON LYNDEN  
 CHECKED BY: AKM/JCS  
 JTB

DATE: 2-27-19  
 SCALE: AS SHOWN  
 JOB NUMBER: 2018-078

**C1.1** PAGE 2 OF 8

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 W:\2018\2018-078 FERDALE RMG VELLEMA PIT RECLAMATION PLAN.DWG\2018-078\_V2019\_C1.2 CONTROL & OWNERSHIP.DWG - 2/27/2019 2:20 PM - Jeff Smith

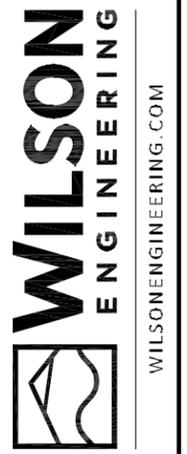


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**NOTES:**  
 1) SEE EXISTING CONDITIONS & SURVEY CONTROL SHEET FOR MAPPING INFORMATION.  
 2) PROPERTY LINES SHOWN ARE BASED ON GROUND SURVEY.

PARCEL NUMBERS (PERMIT AREA ONLY)  
**(A)** = 390311 194459  
**(B)** = 390311 184410

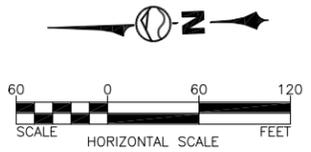
CIVIL  
 STRUCTURAL  
 SURVEY



DESIGNED BY: CDS  
 DRAWN BY: AKM/JCS  
 CHECKED BY: AVL

**FERDALE READY MIX**  
 VELLEMA SITE RECLAMATION PLAN  
 ADJACENT OWNERSHIP

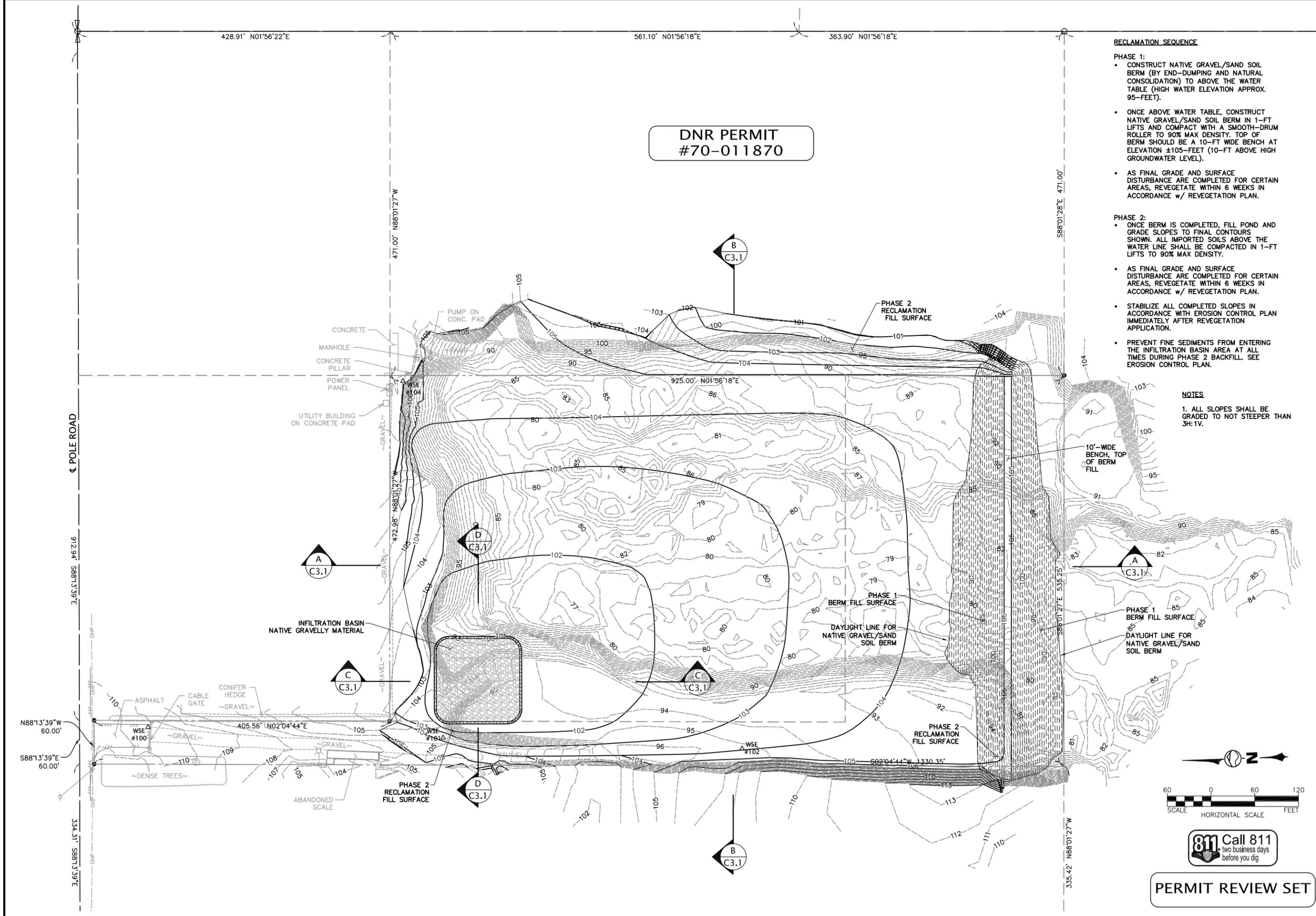
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 JOB NUMBER: 2018-078



**PERMIT REVIEW SET**

SHEET: **C1.2**  
 PAGE: **3** OF **8**

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 W:\2018\2018-078 FERDALE RMG VELLEMA PIT RECLAMATION PLAN.DWG\2018-078\_V2019\_C2.1 RECLAMATION SEQUENCE PLAN.DWG - 2/27/2019 2:21 PM - Jeff Smith



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**RECLAMATION SEQUENCE**

- PHASE 1:**
- CONSTRUCT NATIVE GRAVEL/SAND SOIL BERM (BY END-DUMPING AND NATURAL CONSOLIDATION) TO ABOVE THE WATER TABLE (HIGH WATER ELEVATION APPROX. 95- FEET).
  - ONCE ABOVE WATER TABLE, CONSTRUCT NATIVE GRAVEL/SAND SOIL BERM IN 1-FEET LIFTS AND COMPACT WITH A SMOOTH-DRUM ROLLER TO 90% MAX DENSITY. TOP OF BERM SHOULD BE A 10-FEET WIDE BENCH AT ELEVATION ±105- FEET (10-FEET ABOVE HIGH GROUNDWATER LEVEL).
  - AS FINAL GRADE AND SURFACE DISTURBANCE ARE COMPLETED FOR CERTAIN AREAS, REVEGETATE WITHIN 6 WEEKS IN ACCORDANCE W/ REVEGETATION PLAN.
- PHASE 2:**
- ONCE BERM IS COMPLETED, FILL POND AND GRADE SLOPES TO FINAL CONTOURS SHOWN. ALL IMPORTED SOILS ABOVE THE WATER LINE SHALL BE COMPACTED IN 1-FEET LIFTS TO 90% MAX DENSITY.
  - AS FINAL GRADE AND SURFACE DISTURBANCE ARE COMPLETED FOR CERTAIN AREAS, REVEGETATE WITHIN 6 WEEKS IN ACCORDANCE W/ REVEGETATION PLAN.
  - STABILIZE ALL COMPLETED SLOPES IN ACCORDANCE WITH EROSION CONTROL PLAN IMMEDIATELY AFTER REVEGETATION APPLICATION.
  - PREVENT FINE SEDIMENTS FROM ENTERING THE INFILTRATION BASIN AREA AT ALL TIMES DURING PHASE 2 BACKFILL. SEE EROSION CONTROL PLAN.

**NOTES**

1. ALL SLOPES SHALL BE GRADED TO NOT STEEPER THAN 3H:1V.

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 STRUCTURAL  
 SURVEY



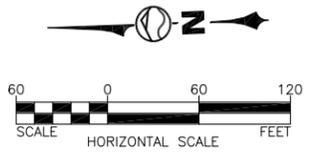
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 DRAWN BY: JCS  
 CHECKED BY: AWL

**FERDALE READY MIX**  
**VELLEMA SITE RECLAMATION PLAN**  
**RECLAMATION SEQUENCE PLAN**

WASHINGTON  
 LYNDEN

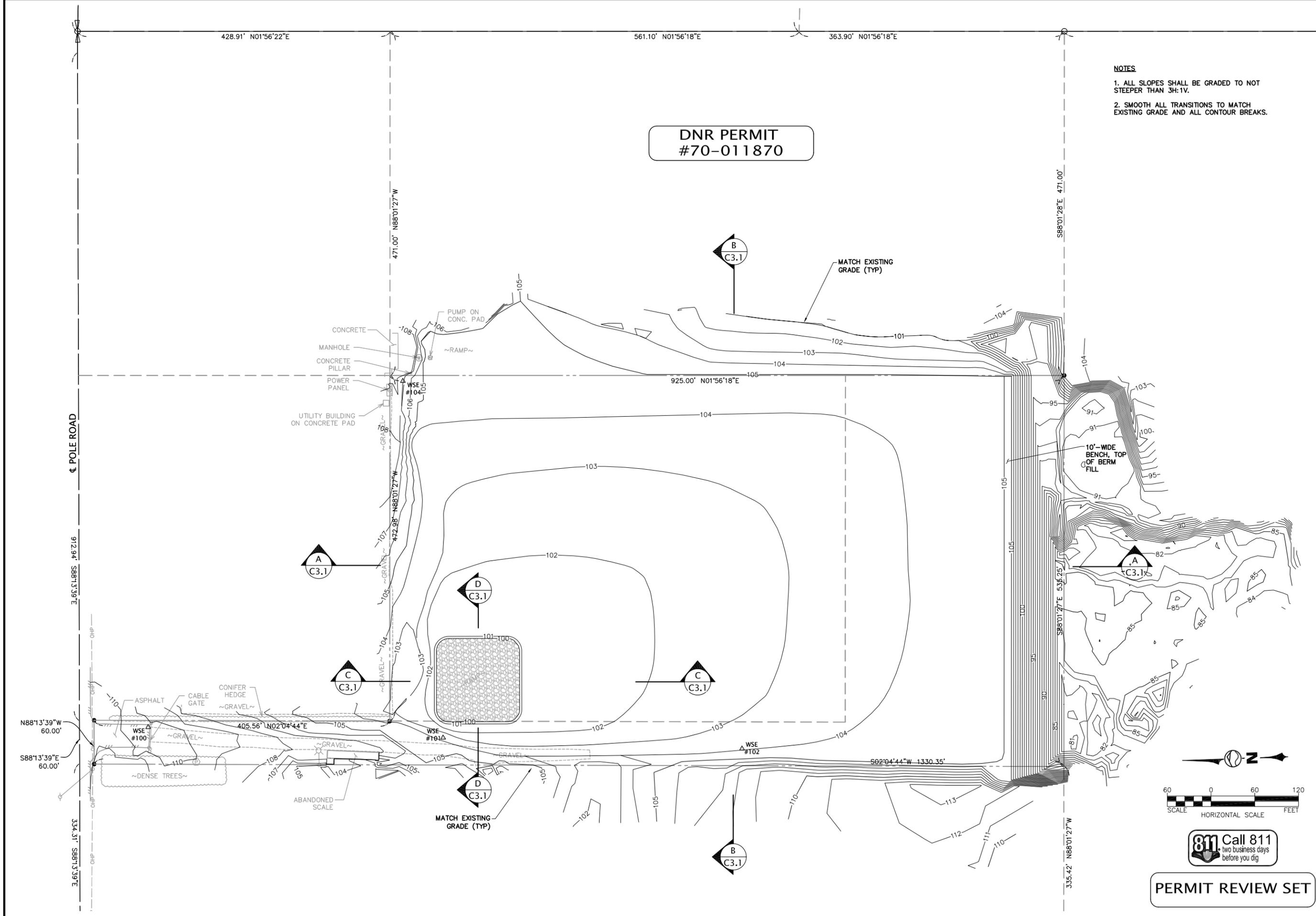
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 SCALE: AS SHOWN  
 JOB NUMBER: 2018-078

SHEET: **C2.1**  
 PAGE: 4 OF 8



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- NOTES**
1. ALL SLOPES SHALL BE GRADED TO NOT STEEPER THAN 3H:1V.
  2. SMOOTH ALL TRANSITIONS TO MATCH EXISTING GRADE AND ALL CONTOUR BREAKS.

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DESIGNED BY: CDS  
 DRAWN BY: JCS  
 CHECKED BY: AWL

**FERDALE READY MIX**  
 WASHINGTON  
 VELLEMA SITE RECLAMATION PLAN  
 LYNDEN  
 FINAL SURFACE CONTOURS

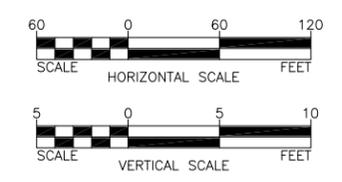
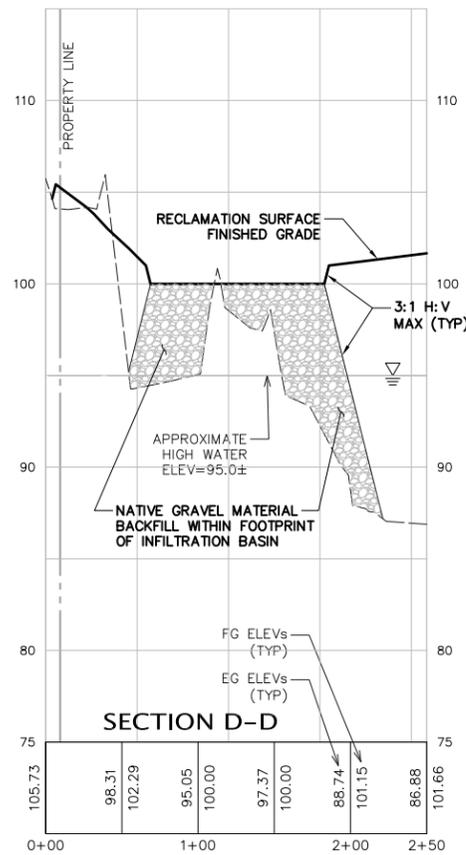
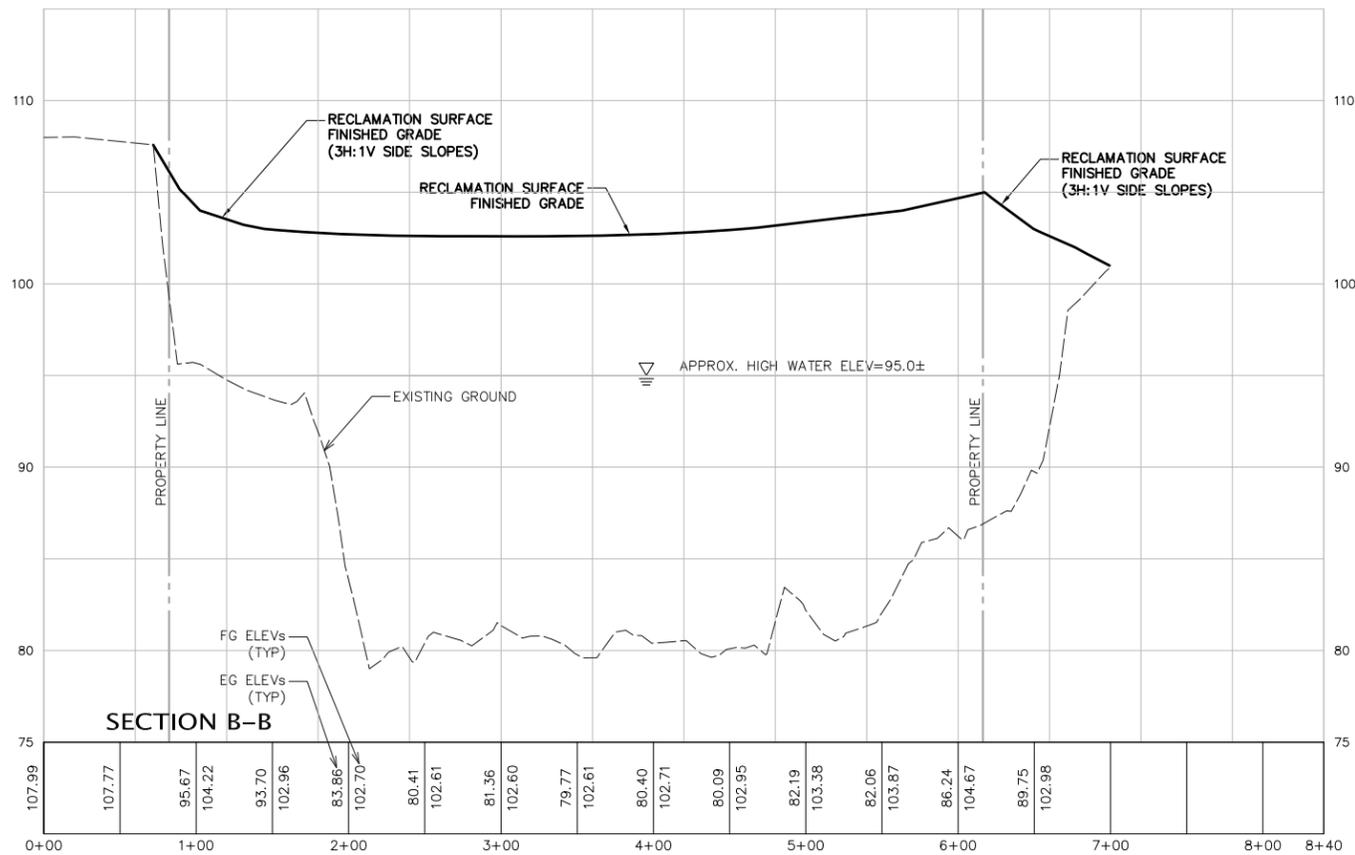
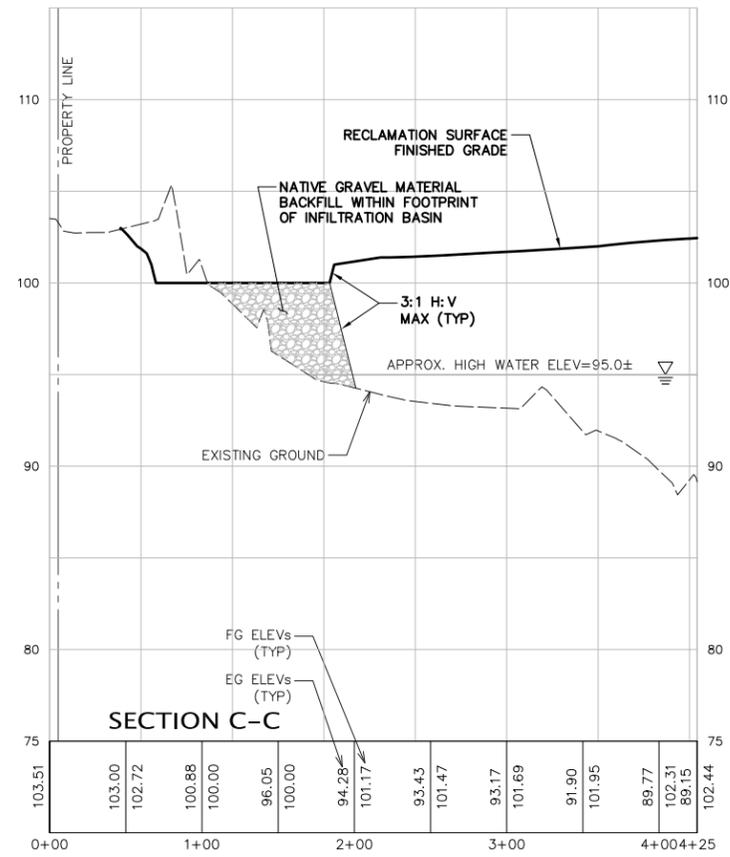
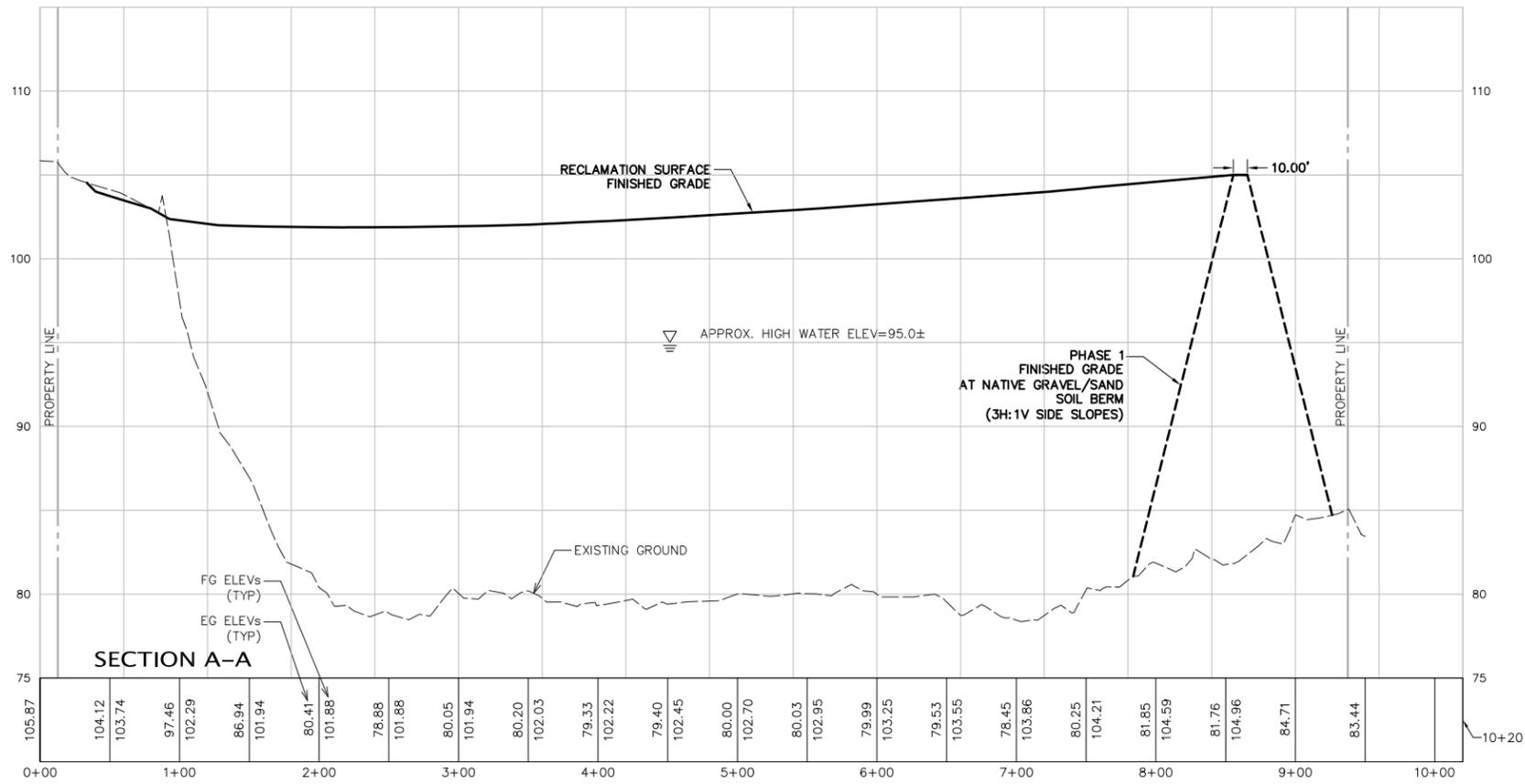
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 SCALE: AS SHOWN  
 JOB NUMBER: 2018-078

SHEET: **C2.2**  
 PAGE: 5 OF 8



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W:\2018\2018-078 FERDALE RMG VELLEMA PIT RECLAMATION PLAN.DWG\2018-078\_V2019\_C3.1 SITE CROSS SECTIONS.DWG - 2/27/2019 2:24 PM - Jeff Smith



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CIVIL STRUCTURAL SURVEY



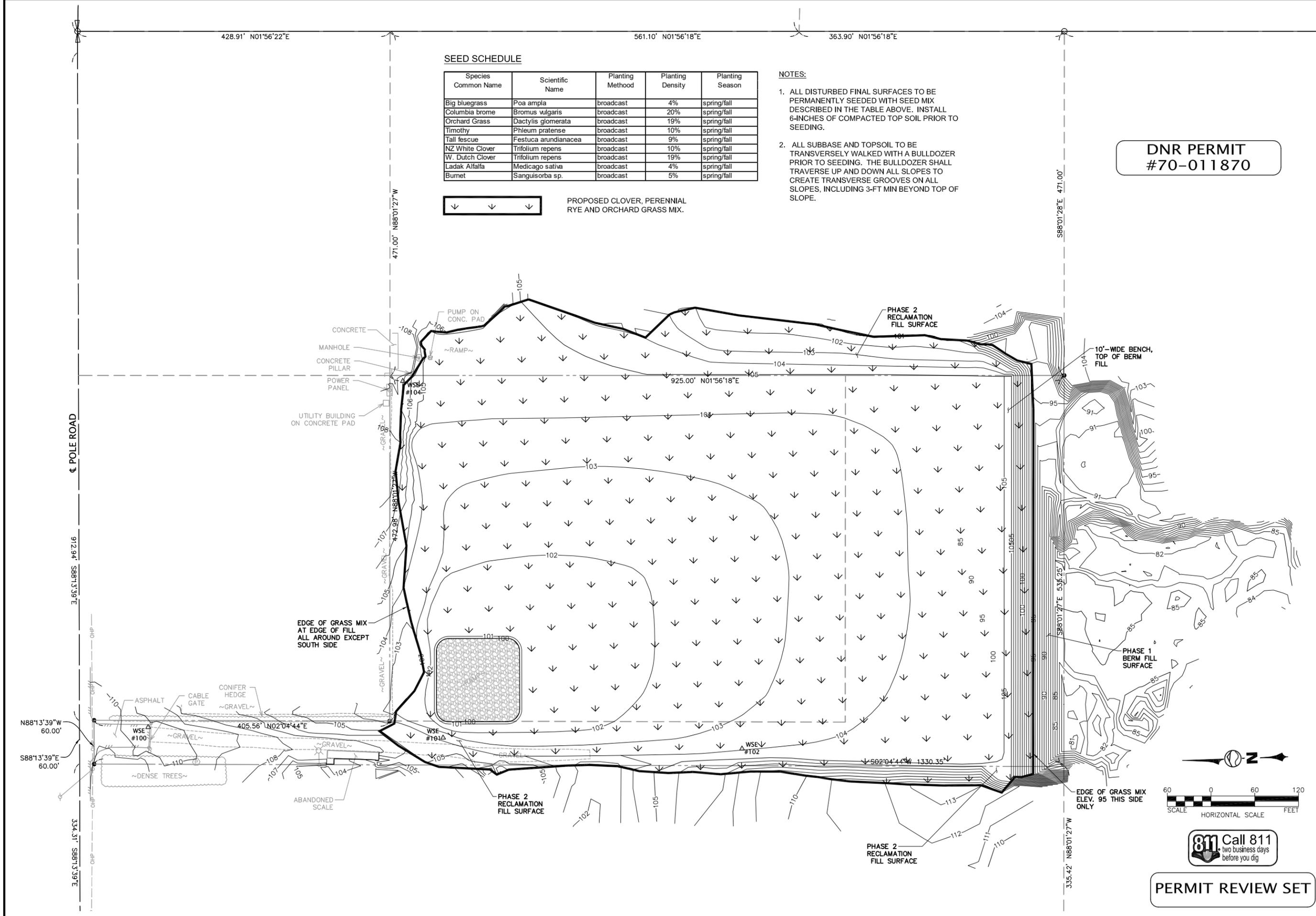
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DRAWN BY: JCS  
CHECKED BY: AWL

**FERDALE READY MIX**  
**VELLEMA SITE RECLAMATION PLAN**  
**SITE CROSS SECTIONS**

WASHINGTON  
LYNDEN

SHEET: **C3.1**  
DATE: 2-27-19  
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PAGE: 6 OF 8  
JOB NUMBER: 2018-078

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 W:\2018\2018-078 FERDALE RMG VELLEMA PIT RECLAMATION PLAN.DWG\2018-078\_V2019\_C4.1 REVEGETATION PLAN.DWG - 2/27/2019 2:25 PM - Jeff Smith



**SEED SCHEDULE**

Species Common Name	Scientific Name	Planting Method	Planting Density	Planting Season
Big bluegrass	Poa ampla	broadcast	4%	spring/fall
Columbia brome	Bromus vulgaris	broadcast	20%	spring/fall
Orchard Grass	Dactylis glomerata	broadcast	19%	spring/fall
Timothy	Phleum pratense	broadcast	10%	spring/fall
Tall fescue	Festuca arundianacea	broadcast	9%	spring/fall
NZ White Clover	Trifolium repens	broadcast	10%	spring/fall
W. Dutch Clover	Trifolium repens	broadcast	19%	spring/fall
Ladak Alfalfa	Medicago sativa	broadcast	4%	spring/fall
Bumet	Sanguisorba sp.	broadcast	5%	spring/fall

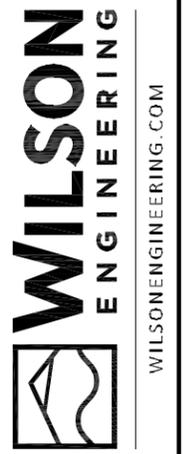
↓ ↓ ↓  
 PROPOSED CLOVER, PERENNIAL RYE AND ORCHARD GRASS MIX.

**NOTES:**

1. ALL DISTURBED FINAL SURFACES TO BE PERMANENTLY SEEDED WITH SEED MIX DESCRIBED IN THE TABLE ABOVE. INSTALL 6-INCHES OF COMPACTED TOP SOIL PRIOR TO SEEDING.
2. ALL SUBBASE AND TOPSOIL TO BE TRANSVERSELY WALKED WITH A BULLDOZER PRIOR TO SEEDING. THE BULLDOZER SHALL TRAVERSE UP AND DOWN ALL SLOPES TO CREATE TRANSVERSE GROOVES ON ALL SLOPES, INCLUDING 3-FT MIN BEYOND TOP OF SLOPE.

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 #70-011870**

CIVIL  
 STRUCTURAL  
 SURVEY



DESIGNED BY: CDS  
 DRAWN BY: JCS  
 CHECKED BY: AWL

**FERDALE READY MIX**  
**VELLEMA SITE RECLAMATION PLAN**  
**REVEGETATION PLAN**

WASHINGTON  
 LYNDEN

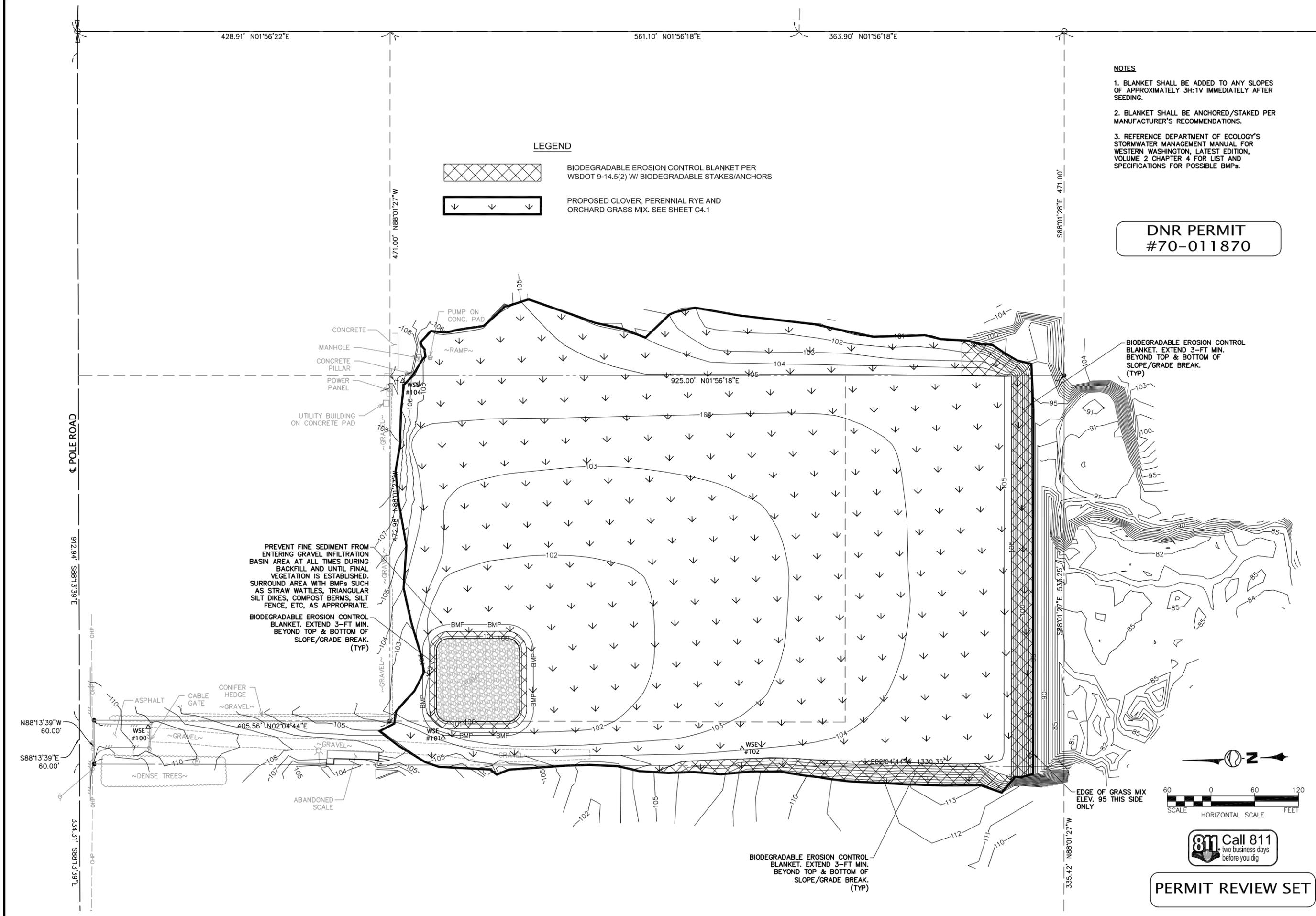
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SHEET: **C4.1**  
 PAGE: 7 OF 8



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 W:\2018\2018-078 FERDALE RMG VELLEMA PIT RECLAMATION PLAN.DWG\2018-078\_V2019\_C4.2 EROSION CONTROL PLAN.DWG - 2/28/2019 8:37 AM - Jeff Smith



**LEGEND**

 BIODEGRADABLE EROSION CONTROL BLANKET PER WSDOT 9-14.5(2) W/ BIODEGRADABLE STAKES/ANCHORS

 PROPOSED CLOVER, PERENNIAL RYE AND ORCHARD GRASS MIX. SEE SHEET C4.1

- NOTES**
1. BLANKET SHALL BE ADDED TO ANY SLOPES OF APPROXIMATELY 3H:1V IMMEDIATELY AFTER SEEDING.
  2. BLANKET SHALL BE ANCHORED/STAKED PER MANUFACTURER'S RECOMMENDATIONS.
  3. REFERENCE DEPARTMENT OF ECOLOGY'S STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON, LATEST EDITION, VOLUME 2 CHAPTER 4 FOR LIST AND SPECIFICATIONS FOR POSSIBLE BMPs.

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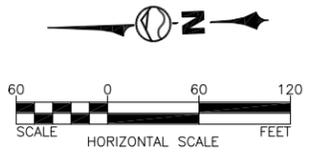
PREVENT FINE SEDIMENT FROM ENTERING GRAVEL INFILTRATION BASIN AREA AT ALL TIMES DURING BACKFILL AND UNTIL FINAL VEGETATION IS ESTABLISHED. SURROUND AREA WITH BMPs SUCH AS STRAW WATTLES, TRIANGULAR SILT DIKES, COMPOST BERMS, SILT FENCE, ETC, AS APPROPRIATE.

BIODEGRADABLE EROSION CONTROL BLANKET. EXTEND 3-FT MIN. BEYOND TOP & BOTTOM OF SLOPE/GRADE BREAK. (TYP)

BIODEGRADABLE EROSION CONTROL BLANKET. EXTEND 3-FT MIN. BEYOND TOP & BOTTOM OF SLOPE/GRADE BREAK. (TYP)

BIODEGRADABLE EROSION CONTROL BLANKET. EXTEND 3-FT MIN. BEYOND TOP & BOTTOM OF SLOPE/GRADE BREAK. (TYP)

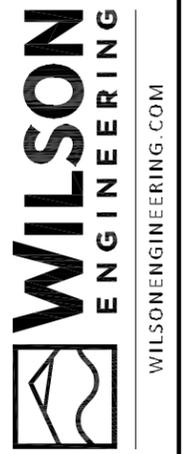
EDGE OF GRASS MIX ELEV. 95 THIS SIDE ONLY



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**FERDALE READY MIX**  
**VELLEMA SITE RECLAMATION PLAN**  
**EROSION CONTROL PLAN**

WASHINGTON  
 LYNDEN

DATE 2-27-19  
 SCALE AS SHOWN  
 JOB NUMBER 2018-078

SHEET **C4.2**  
 PAGE 8 OF 8