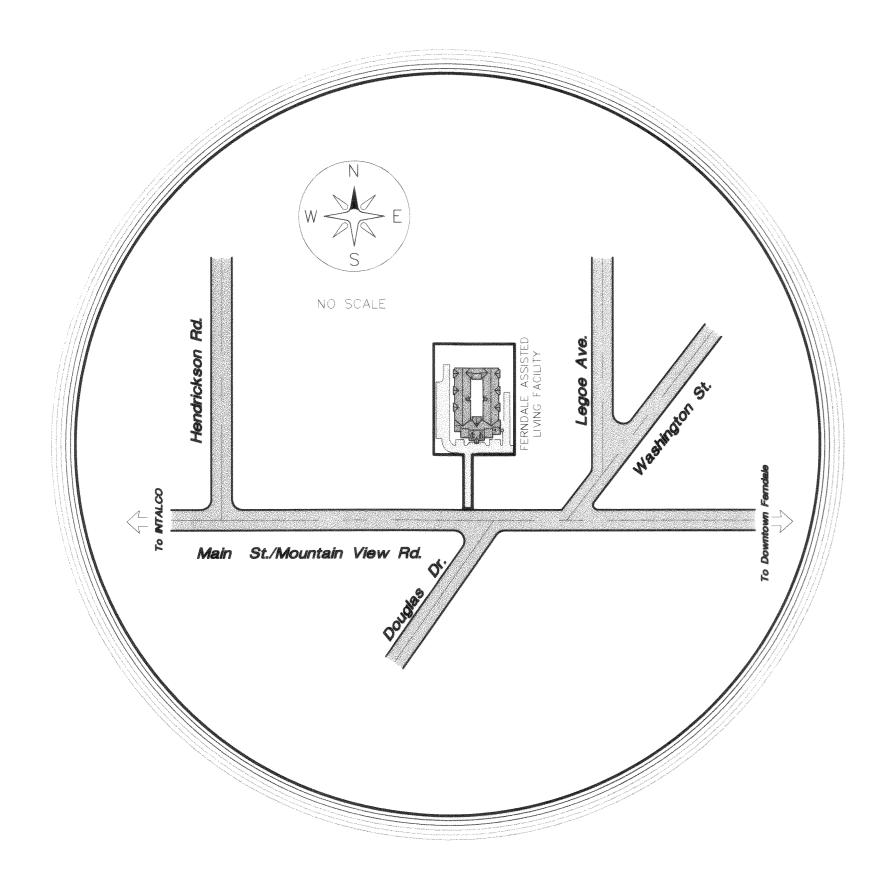
FERNADALE PLACE ASSISTED LIVING FACILITY ASSISTED DRAWINGS



SITE AS-CONSTRUCTED DRAWINGS

- 1. Cover Sheet
- 2. Existing Conditions
- 3. Site Plan
- 4. Grading Plan
- 5. Parking Lot Design
- 6. Water Plan & Profile
- 6A. Water Plan & Profile (Sheet 2)
 - 7. Sanitary Sewer Plan & Profile
 - 8. Storm Drainage Plan & Profile
 - 9. Storm Drainage Plan & Profile
- 10. Detention Fat Pipe Plan
- 10A. Pump Specification Sheet
 - 11. Hydrology & Basin Analysis

DRAWN BY	DATE	ASSISTED	LIVING
CHECKED BY	DATE	7.00.0.22	

JOB # 97050

FOR: ASSISTED LIVING CONCEPTS

FACILITY, FERNDALE

PROFESSIONAL CERTIFICATION

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN ACCURATELY DEPICTS THE MATERIALS, TYPES, AND LOCATIONS OF THE IMPROVEMENTS SHOWN HEREON AS OF THIS DATE.

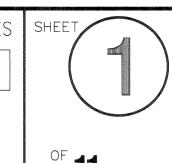




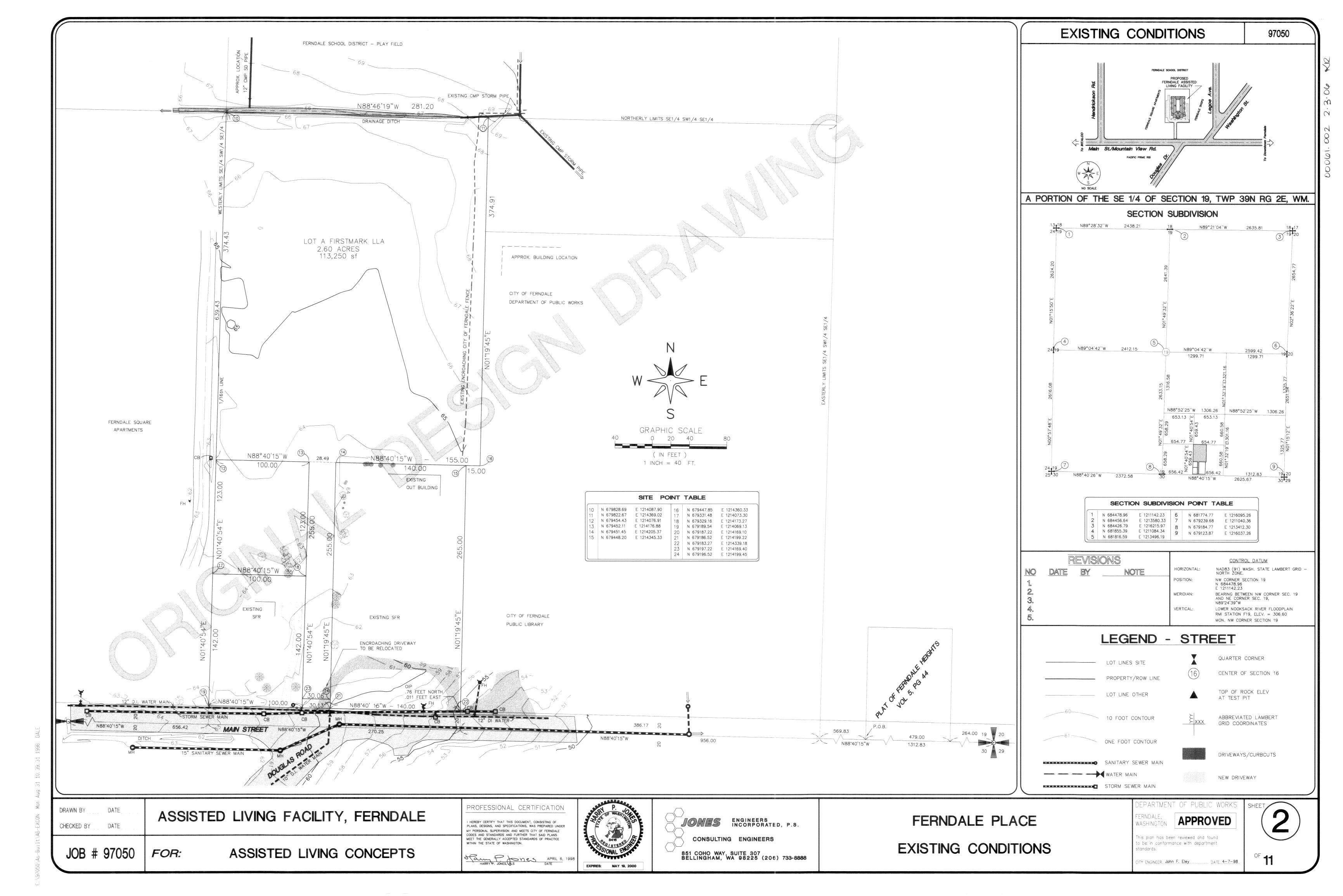
FERNDALE PLACE
AS-BUILT
COVER SHEET

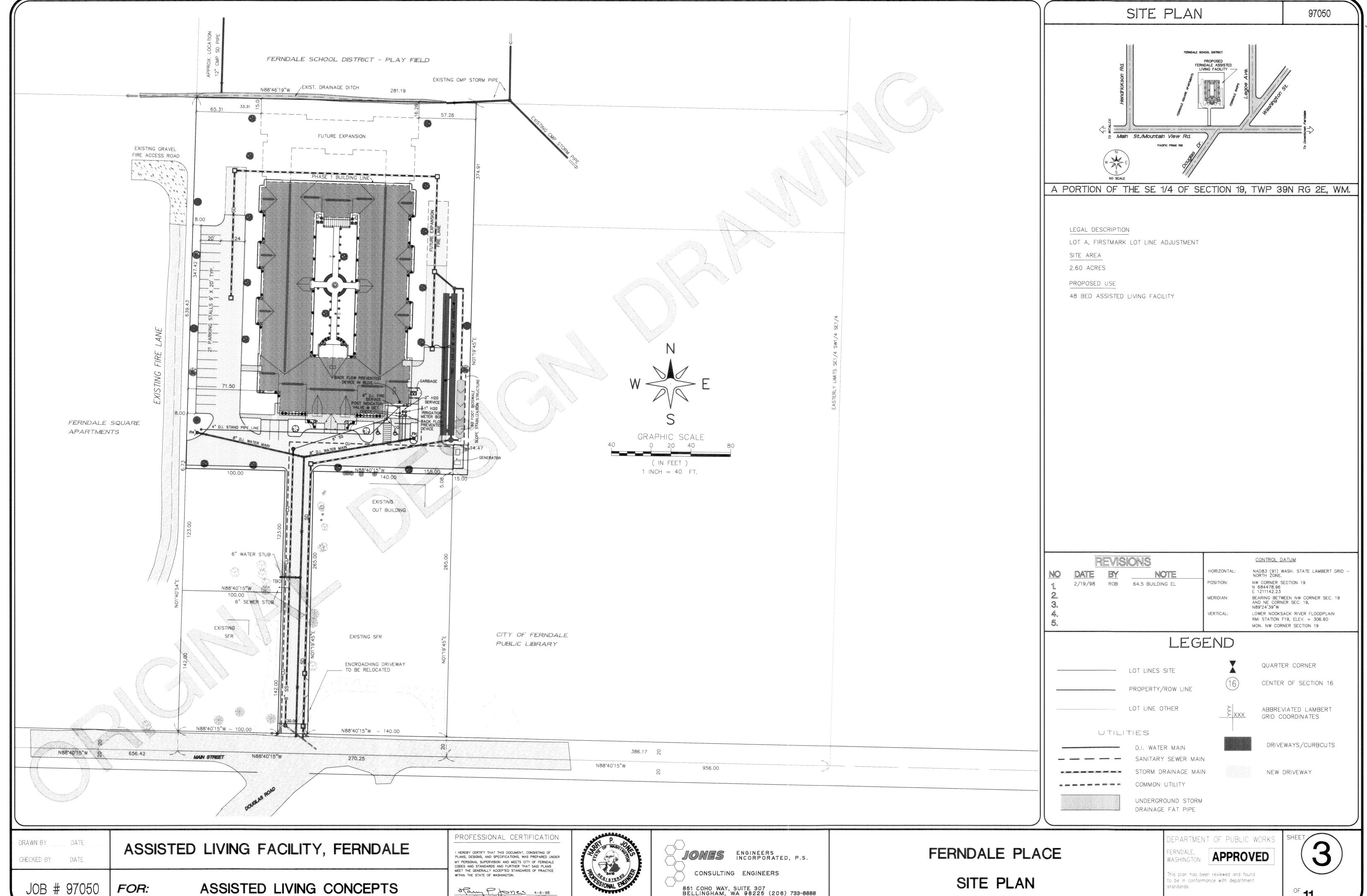


CITY ENGINEER



OF 📶

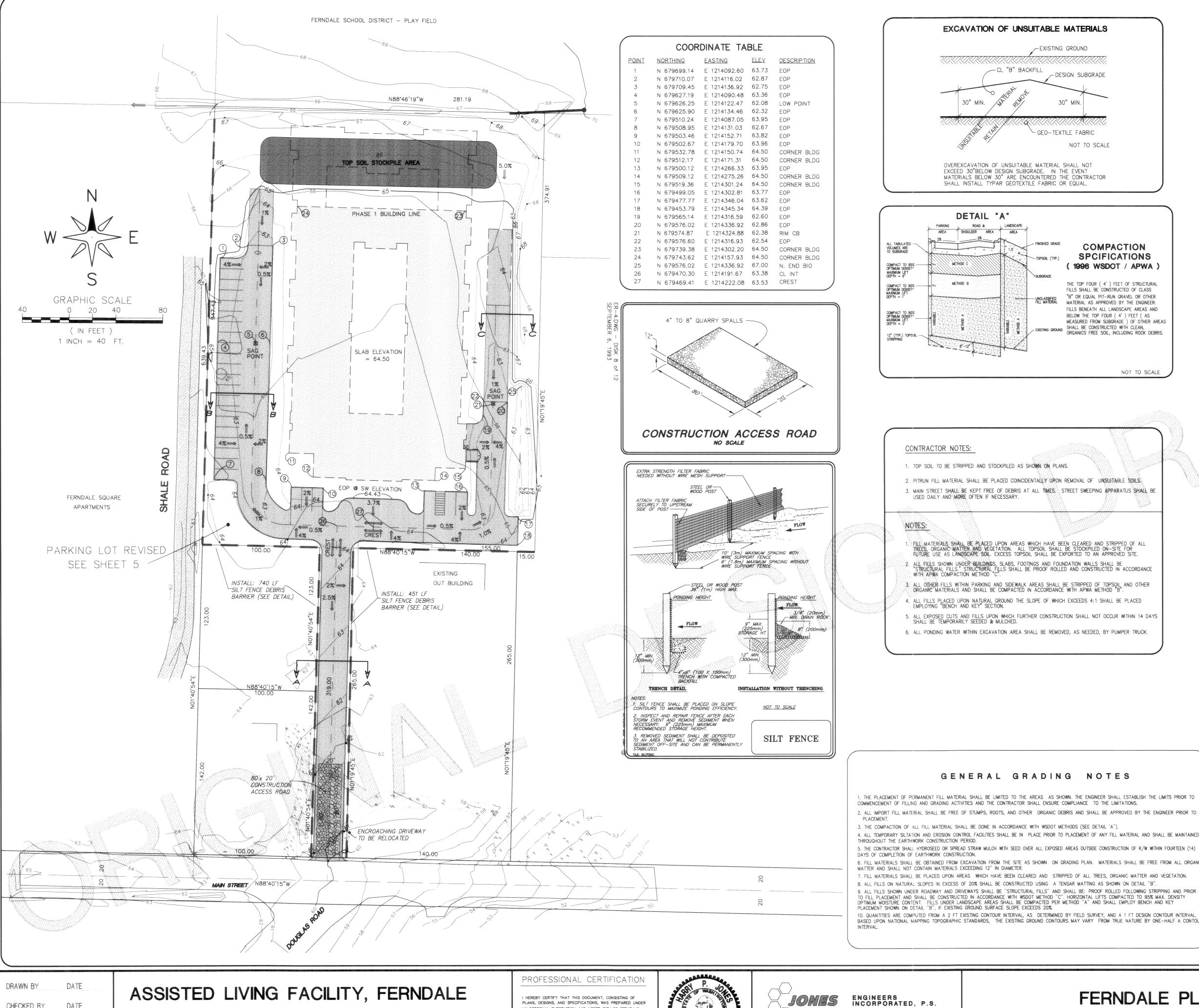


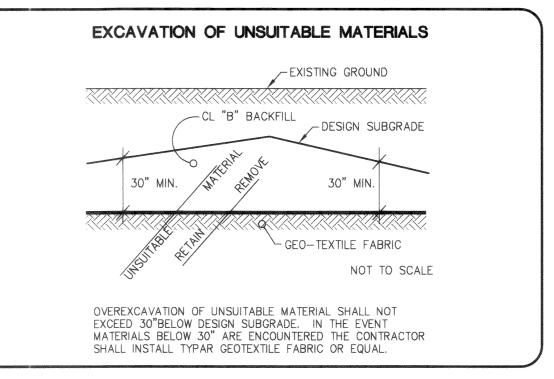


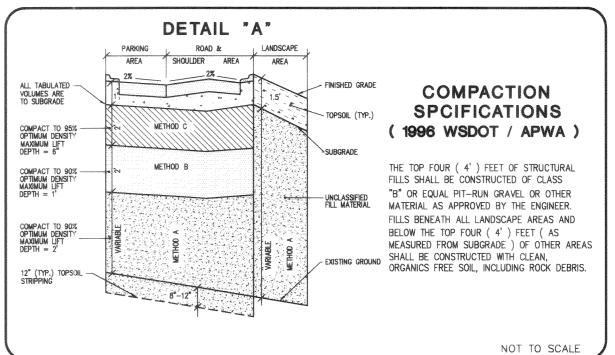
851 COHO WAY, SUITE 307 BELLINGHAM, WA 98225 (206) 733-8888

CITY ENGINEER John F. Eley DATE 4/7/98

HARRY P. JONES, OLS DATE







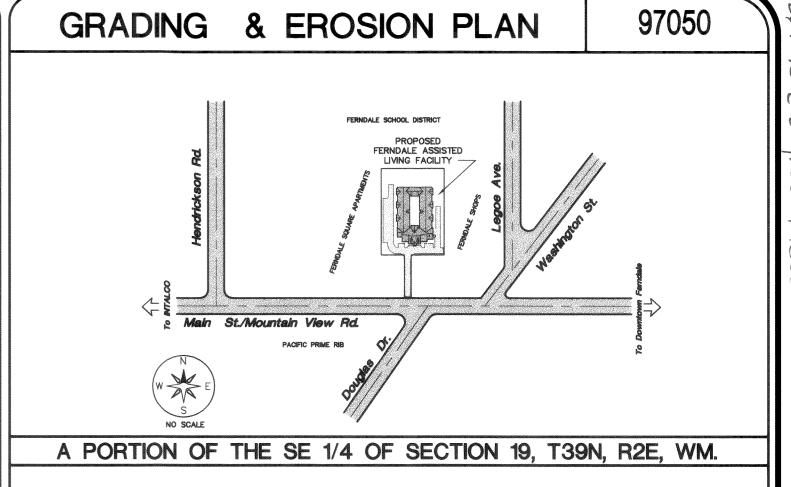
CONTRACTOR NOTES:

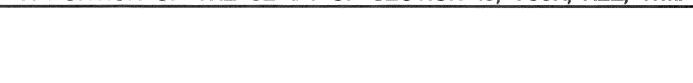
- 1. TOP SOIL TO BE STRIPPED AND STOCKPILED AS SHOWN ON PLANS.
- 2. PITRUN FILL MATERIAL SHALL BE PLACED COINCIDENTALLY URON REMOVAL OF UNSUITABLE SOILS.
- 3. MAIN STREET SHALL BE KEPT FREE OF DEBRIS AT ALL TIMES. STREET SWEEPING APPARATUS SHALL BE USED DAILY AND MORE OFTEN IF NECESSARY.

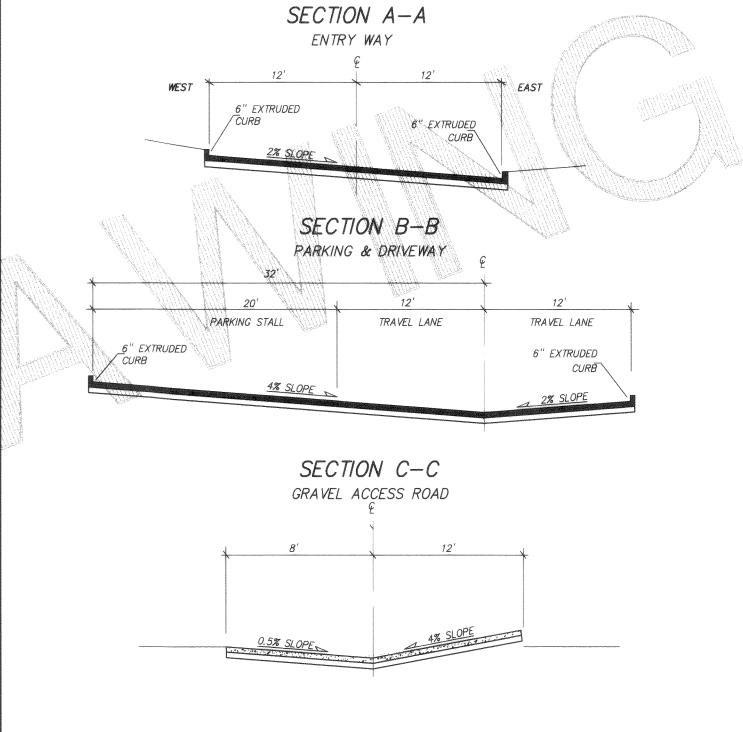
- 1. FILL MATERIALS SHALL BE PLACED UPON AREAS WHICH HAVE BEEN CLEARED AND STRIPPED OF ALL TREES, ORGANIC MATTER AND VEGETATION. ALL TOPSOIL SHALL BE STOCKPILED ON—SITE FOR FUTURE USE AS LANDSCAPE SOIL EXCESS TOPSOIL SHALL BE EXPORTED TO AN APPROVED SITE.
- 2. ALL FILS SHOWN UNDER BUILDINGS, SLABS, FOOTINGS AND FOUNDATION WALLS SHALL BE "STRUCTURAL FILLS." STRUCTURAL FILLS SHALL BE PROOF ROLLED AND CONSTRUCTED IN ACCORDANCE WITH APWA COMPACTION METHOD "C". 3. ALL OTHER FILLS WITHIN PARKING AND SIDEWALK AREAS SHALL BE STRIPPED OF TOPSOIL AND OTHER ORGANIC MATERIALS AND SHALL BE COMPACTED IN ACCORDANCE WITH APWA METHOD "B".
- 4. ALL FILLS PLACED UPON NATURAL GROUND THE SLOPE OF WHICH EXCEEDS 4:1 SHALL BE PLACED EMPLOYING "BENCH AND KEY" SECTION.
- 5. ALL EXPOSED CUTS AND FILLS UPON WHICH FURTHER CONSTRUCTION SHALL NOT OCCUR WITHIN 14 DAYS SHALL BE TEMPORARILY SEEDED & MULCHED. 6. ALL PONDING WATER WITHIN EXCAVATION AREA SHALL BE REMOVED, AS NEEDED, BY PUMPER TRUCK.

GENERAL GRADING NOTES

- . THE PLACEMENT OF PERMANENT FILL MATERIAL SHALL BE LIMITED TO THE AREAS AS SHOWN. THE ENGINEER SHALL ESTABLISH THE LIMITS PRIOR TO COMMENCEMENT OF FILLING AND GRADING ACTIVITIES AND THE CONTRACTOR SHALL ENSURE COMPLIANCE TO THE LIMITATIONS. 2. ALL IMPORT FILL MATERIAL SHALL BE FREE OF STUMPS, ROOTS, AND OTHER ORGANIC DEBRIS AND SHALL BE APPROVED BY THE ENGINEER PRIOR TO
- 3. THE COMPACTION OF ALL FILL MATERIAL SHALL BE DONE IN ACCORDANCE WITH WSDOT METHODS (SEE DETAIL 'A"). 4. ALL TEMPORARY SILTATION AND EROSION CONTROL FACILITIES SHALL BE IN PLACE PRIOR TO PLACEMENT OF ANY FILL MATERIAL AND SHALL BE MAINTAINED
- DAYS OF COMPLETION OF EARTHWORK CONSTRUCTION. 6. FILL MATERIALS SHALL BE OBTAINED FROM EXCAVATION FROM THE SITE AS SHOWN ON GRADING PLAN. MATERIALS SHALL BE FREE FROM ALL ORGANIC MATTER AND SHALL NOT CONTAIN MATERIALS EXCEEDING 12" IN DIAMETER. 7. FILL MATERIALS SHALL BE PLACED UPON AREAS WHICH HAVE BEEN CLEARED AND STRIPPED OF ALL TREES, ORGANIC MATTER AND VEGETATION.
- 8. ALL FILLS ON NATURAL SLOPES IN EXCESS OF 20% SHALL BE CONSTRUCTED USING A TENSAR MATTING AS SHOWN ON DETAIL "B". 9. ALL FILLS SHOWN UNDER ROADWAY AND DRIVEWAYS SHALL BE "STRUCTURAL FILLS" AND SHALL BE: PROOF ROLLED FOLLOWING STRIPPING AND PRIOR TO FILL PLACEMENT AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH WSDOT METHOD "C". HORIZONTAL LIFTS COMPACTED TO 95% MAX. DENSITY OPTIMUM MOISTURE CONTENT. FILLS UNDER LANDSCAPE AREAS SHALL BE COMPACTED PER METHOD "A" AND SHALL EMPLOY BENCH AND KEY
- 10. QUANTITIES ARE COMPUTED FROM A 2 FT EXISTING CONTOUR INTERVAL, AS DETERMINED BY FIELD SURVEY, AND A 1 FT DESIGN CONTOUR INTERVAL. BASED UPON NATIONAL MAPPING TOPOGRAPHIC STANDARDS, THE EXISTING GROUND CONTOURS MAY VARY FROM TRUE NATURE BY ONE-HALF A CONTOUR







REVISIONS			DNS	CONTROL DATUM	
NO	DATE	BY	NOTE	HORIZONTAL:	NAD83 (91) WASH. STATE LAMBERT GRID — NORTH ZONE.
1.				POSITION:	NW CORNER SECTION 19 N 684478.96 E 1211142.23
2. 3.				MERIDIAN:	BEARING BETWEEN NW CORNER SEC. 19 AND NE CORNER SEC. 19, N89*24'39"W
4. 5.				VERTICAL:	LOWER NOOKSACK RIVER FLOODPLAIN RMI STATION F19, ELEV. = 306.60 MON. NW CORNER SECTION 19
			LEG	END	

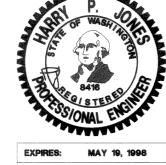
LEGLIND - LOT LINES SITE EXISTING 10 FT CONTOUR ----- PROPERTY/ROW LINE EXISTING 1 FT CONTOUR LOT LINE OTHER DESIGN 1 FT CONTOUR BUILDING DESIGN 5 FT CONTOUR NEW DRIVEWAY 80' x 20' CONSTRUCTION ACCESS ROAD

CHECKED BY DATE

JOB # 97050 ASSISTED LIVING CONCEPTS

MY PERSONAL SUPERVISION AND MEETS CITY OF FERNDALE CODES AND STANDARDS AND FURTHER THAT SAID PLANS MEET THE GENERALLY ACCEPTED STANDARDS OF PRACTICE WITHIN THE STATE OF WASHINGTON.

HARRY P. JONES, PLS DATE

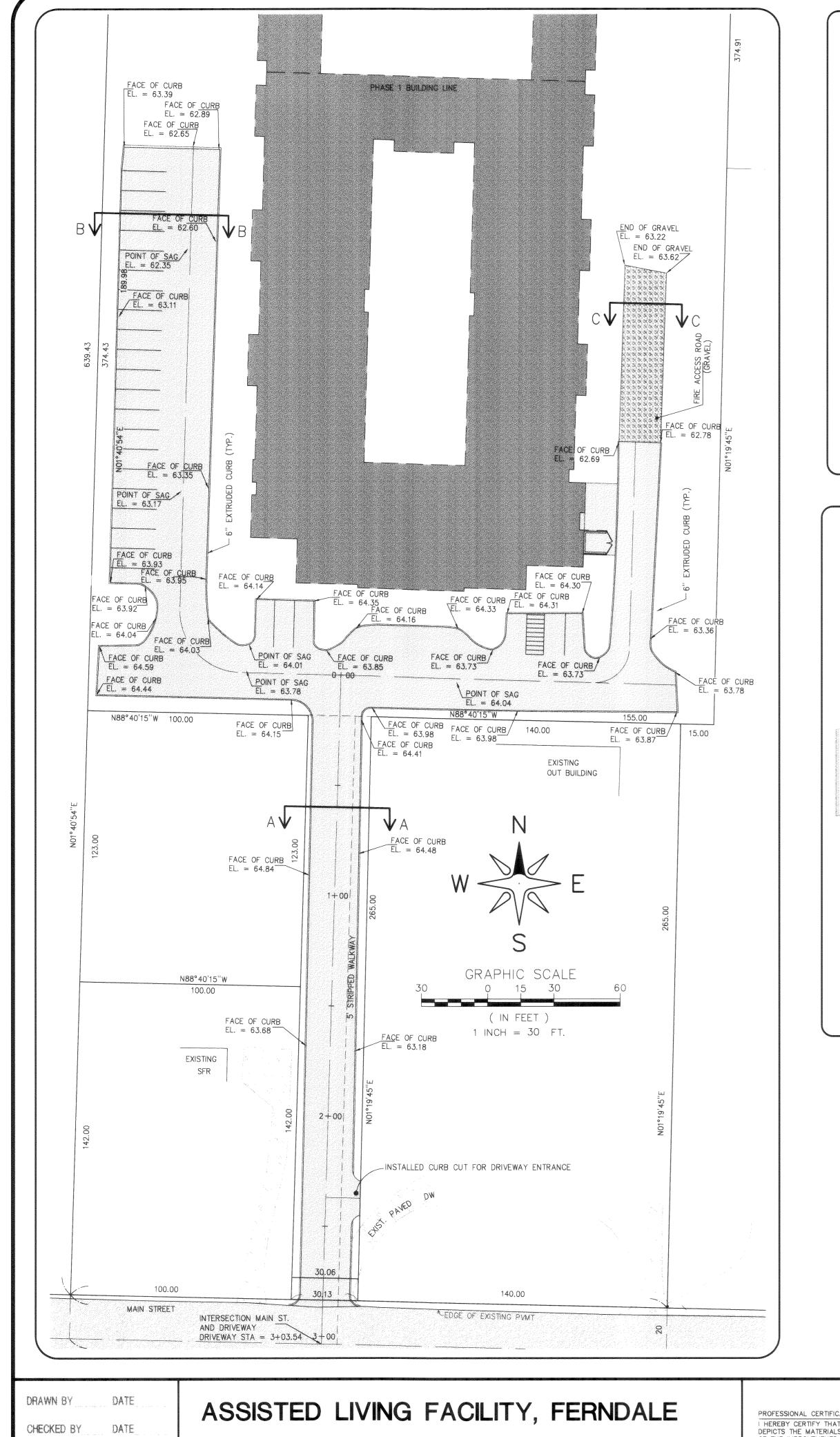


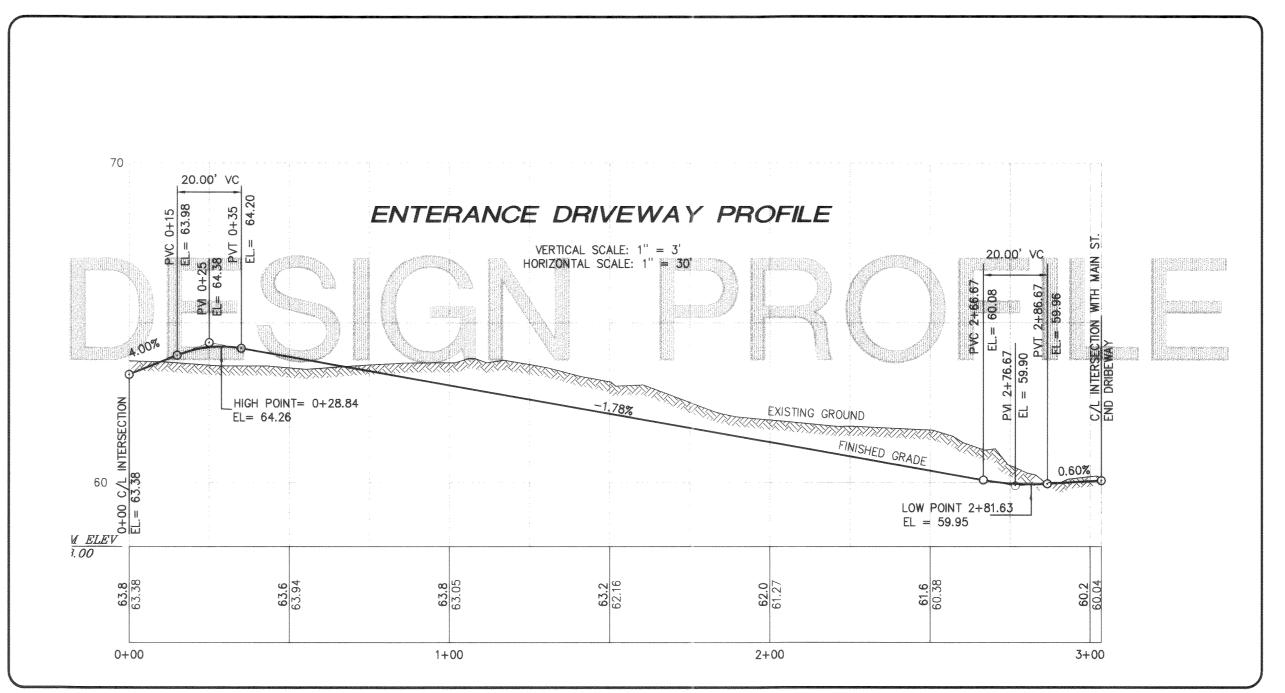
JONES ENGINEERS INCORPORATED, P.S. CONSULTING ENGINEERS 851 COHO WAY, SUITE 307 BELLINGHAM, WA 98225 (206) 733-8888

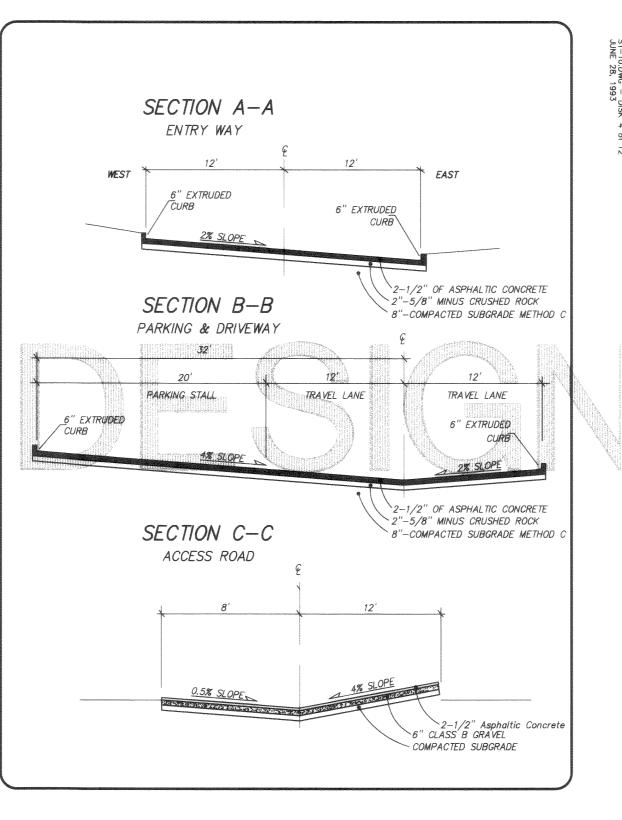
FERNDALE PLACE GRADING & EROSION CONTROL PLAN his plan has been reviewed and found

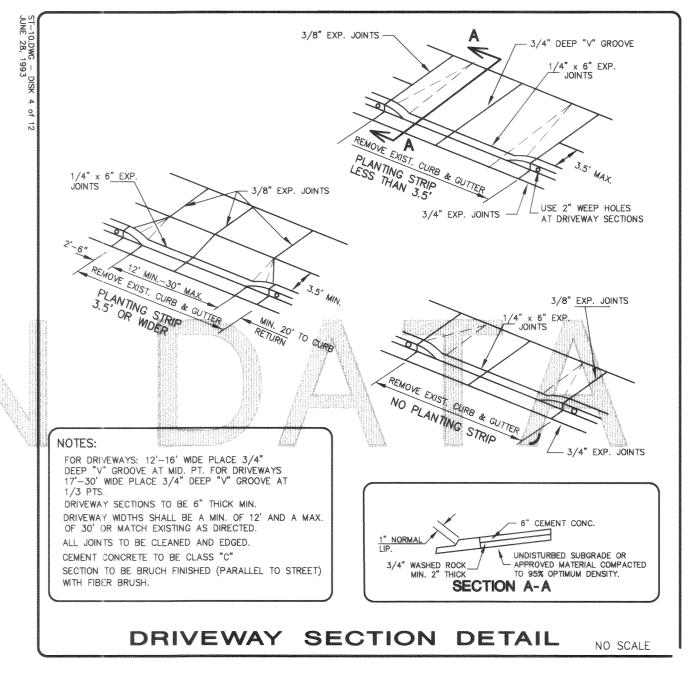
o be in conformance with department RICK SIMON TY ENGINEER JOHN ELEY DATE 2/23/98

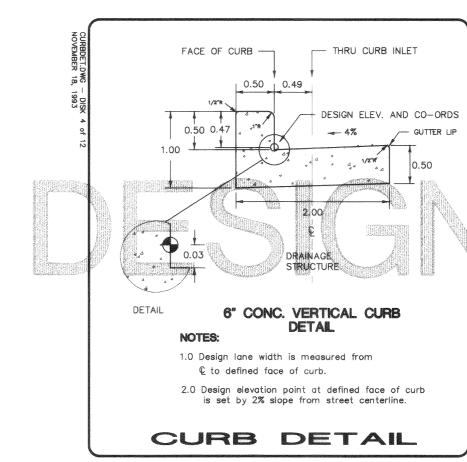


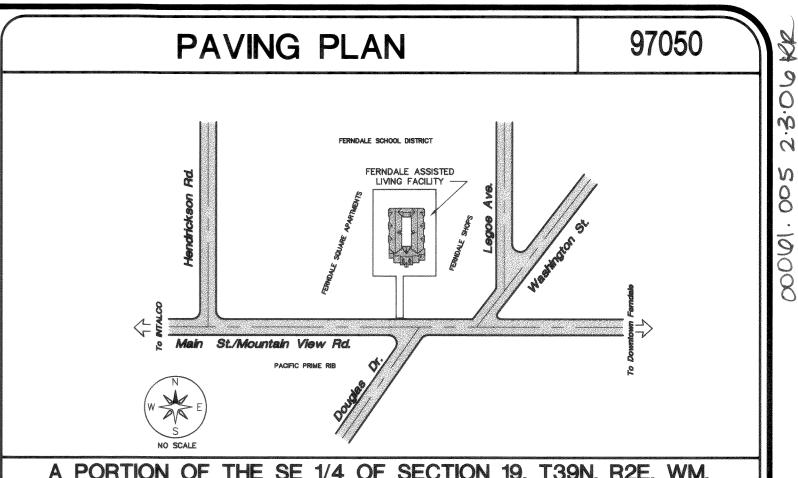












A PORTION OF THE SE 1/4 OF SECTION 19, T39N, R2E, WM.

NOTES

ALL WORK SHALL BE IN CONFORMANCE WITH SECTIONS 2-9 OF THE APWA 1991 STANDARD SPECIFICATIONS UNLESS OTHERWISE MODIFIED HERE ON AND SHALL BE SUBJECT TO APPROVAL BY THE CITY OF FERNDALE. 2. EXTRUDED CURB DESIGN TO BE APPROVED BY THE CITY OF FERNDALE.

3. A REVOCABLE ENCROACHMENT PERMIT SHALL BE

OBTAINED PRIOR TO WORK WITHIN THE PUBLIC

RIGHT OF WAY.

TO THE CITY OF FERNDALE PUBLIC WORKS DEPARTMENT UPON COMPLETION OF THE WORK, PER CITY STANDARDS.

5. ALL ADS PIPE SHALL BE N-12 AND SHALL BE SMOOTH INTERIOR, MEETING THE MINIMUM REQUIREMENTS OF AASHTO M2945. 6. ALL PVC AND ADS PIPE SHALL BE BEDDED PER CITY OF FERNDALE STANDARD SPEC-IFICATION SSS-1.

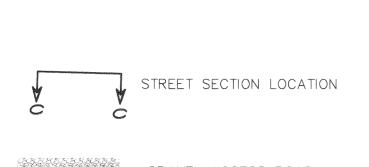
4. A MYLAR AS-BUILT PRINT SHALL BE SUBMITTED

REVISIONS NOTE

CONTROL DATUM NAD83 (91) WASH. STATE LAMBERT GRID -NORTH ZONE.

BEARING BETWEEN NW CORNER SEC. 19 AND NE CORNER SEC. 19, N89"24'39"W LOWER NOOKSACK RIVER FLOODPLAIN RMI STATION F19, ELEV. = 306.60 MON. NW CORNER SECTION 19

LEGEND - STREET



LOT LINE OTHER

PROPERTY/ROW LINE

LOT LINES SITE

GRAVEL ACCESS ROAD

BUILDING NEW DRIVEWAY

EXISTING ROADWAY

EXISTING GRAVEL DRIVEWAY

JOB # 97050

FOR:

ASSISTED LIVING CONCEPTS

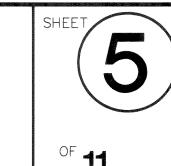
PROFESSIONAL CERTIFICATION HEREBY CERTIFY THAT THIS PLAN ACCURATELY DEPICTS THE MATERIALS, TYPES, AND LOCATIONS OF THE IMPROVEMENTS SHOWN HEREON AS OF THIS DATE. HARRY P. JONES, PE DATE



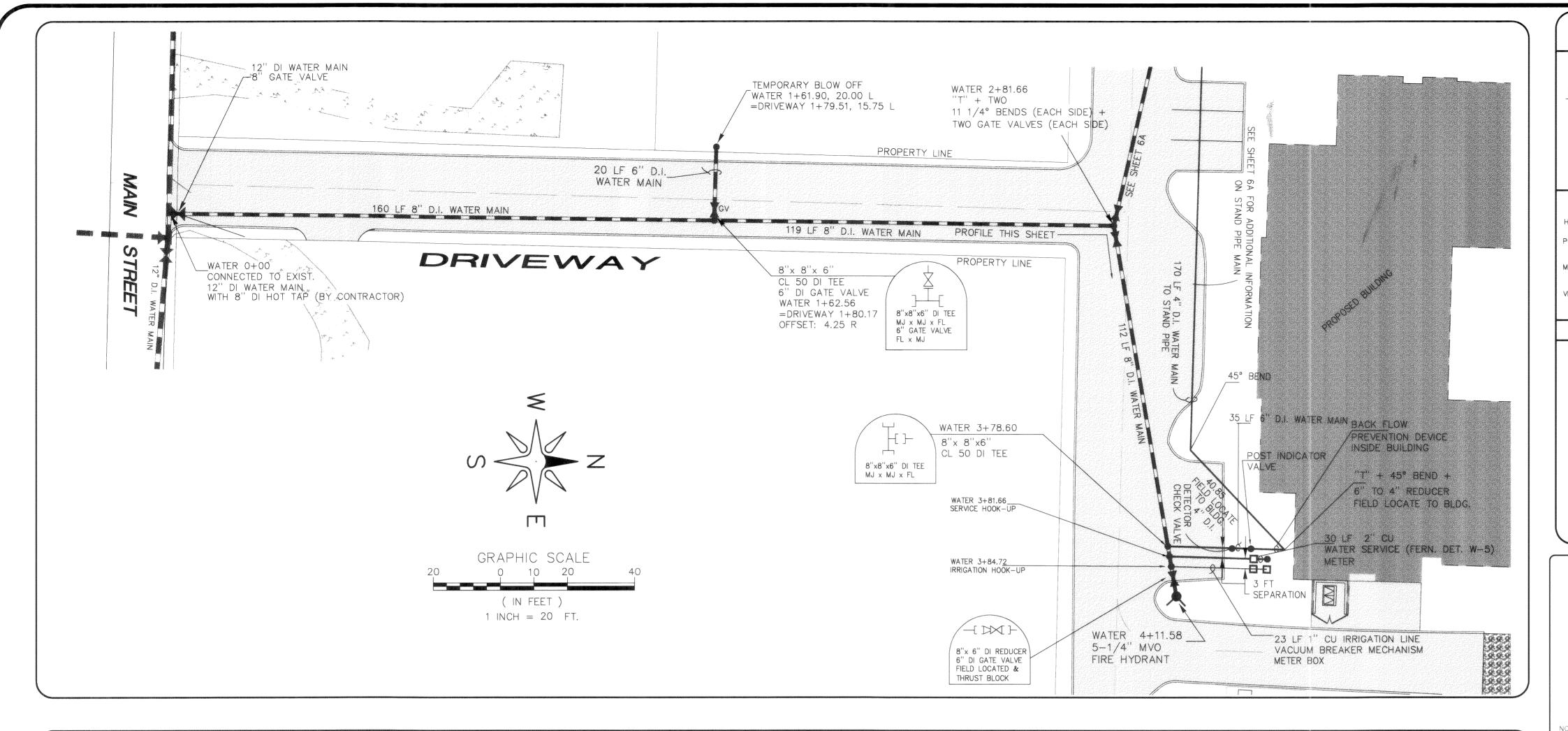
ENGINEERS INCORPORATED, P.S. CONSULTING ENGINEERS 851 COHO WAY, SUITE 307 BELLINGHAM, WA 98225 (206) 733-8888 FERNDALE PLACE AS-BULT PAVING PLAN

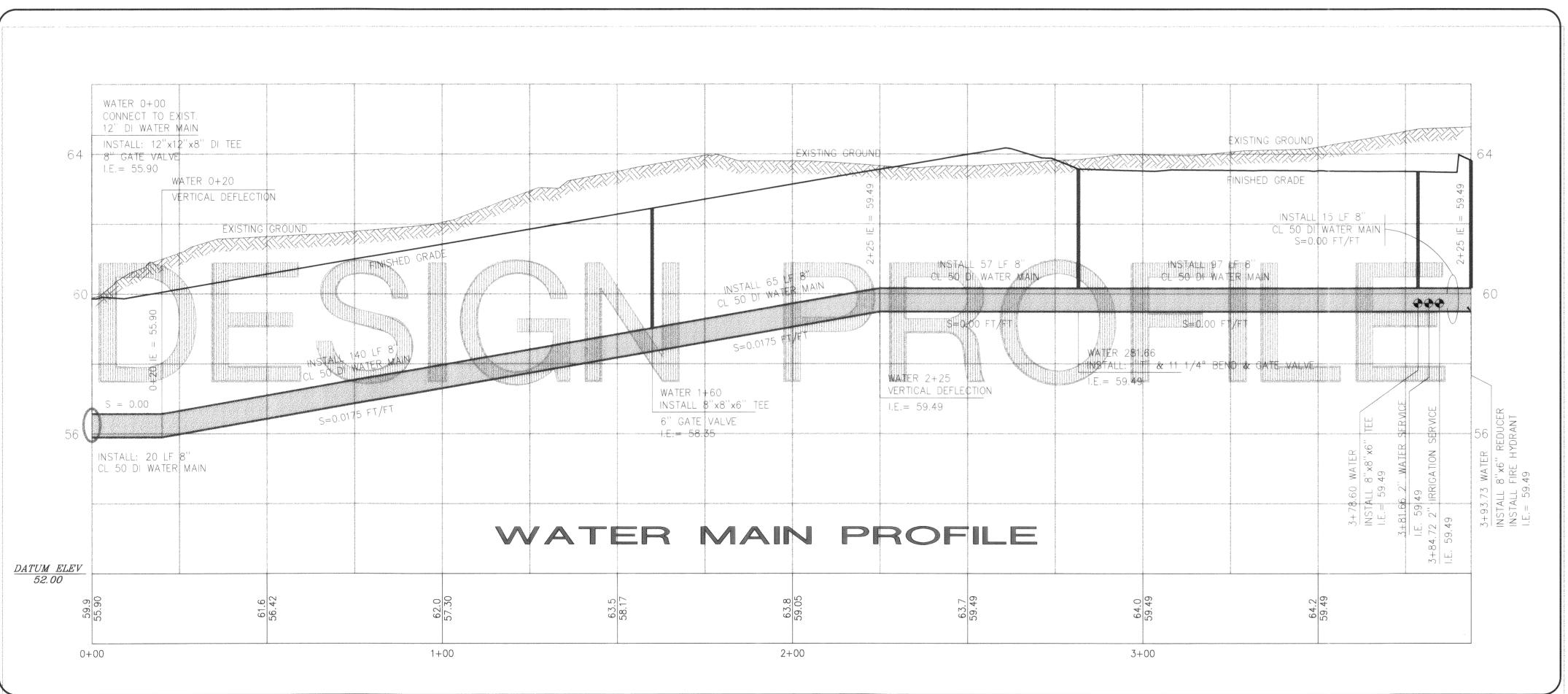
DEPARTMENT OF PUBLIC WORKS WASHINGTON This plan has been reviewed and found to be in conformance with department standards.

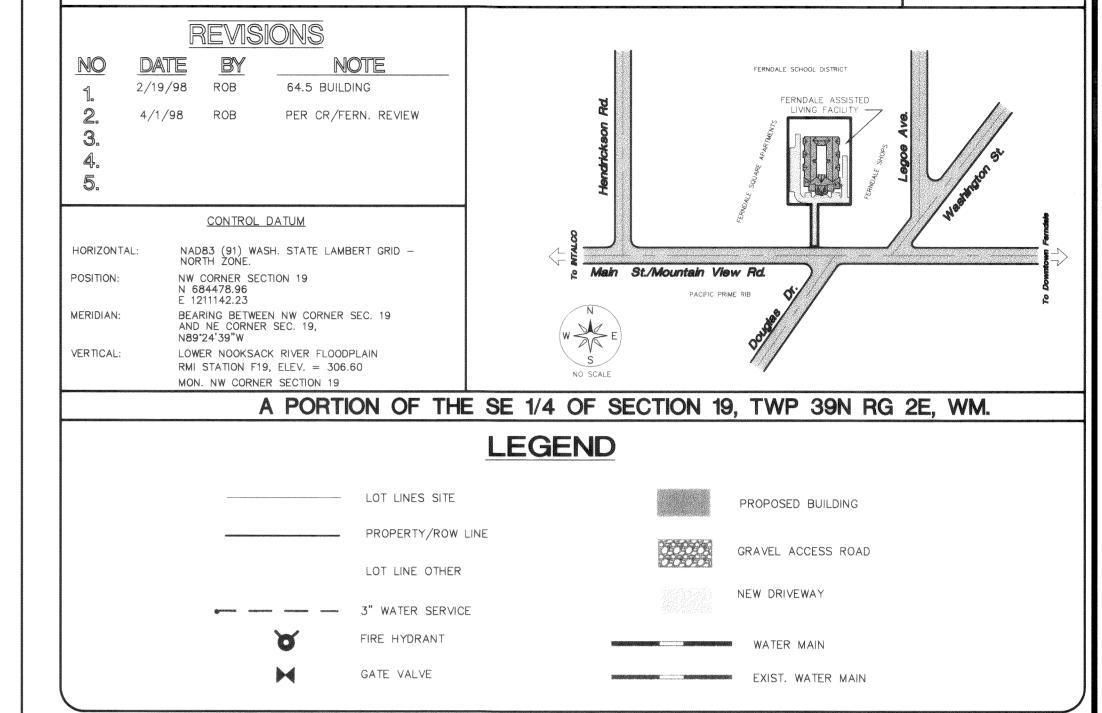
CITY ENGINEER.....



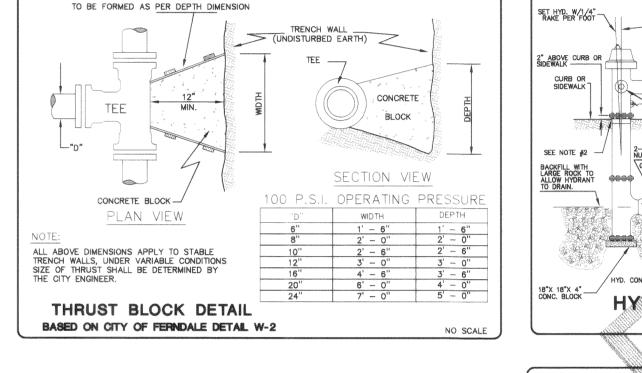


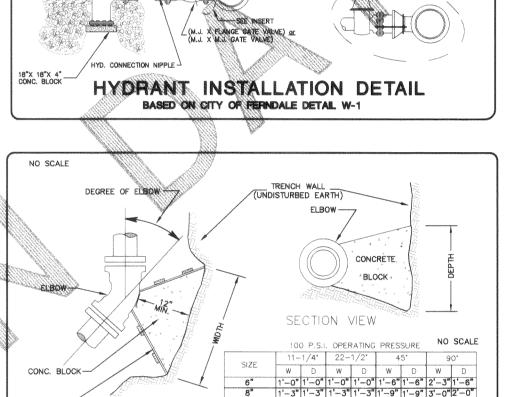






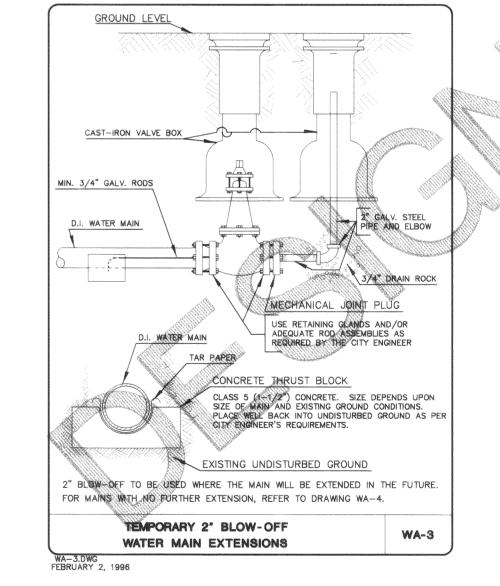
WATER PLAN AND PROFILE





NOTES: FOR CLOSE COUPLED HYDRANTS USE ALL FLANGE TYPE CONNECTIONS.

INSERT N



WATER NOTES

THRUST BLOCK DETAIL

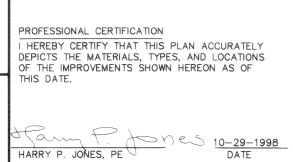
- ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH A.P.W.A. STANDARD SPECIFICATIONS, 1996 EDITION, AND SHALL BE SUBJECT TO APPROVAL BY THE CITY OF FERNDALE
- . ALL WATER MAINS SHALL BE DUCTILE IRON, THICKNESS CLASS 50 WITH CEMENT
- 1. TWO INCH BLOW-OFF SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAIL W-9.
- 5. ALL WORK MUST BE INSPECTED BY A REPRESENTATIVE OF THE CITY ENGINEERING DIVISION, AND 24 HOURS NOTICE MUST BE GIVEN PRIOR TO STARTING WORK. 6. A MYLAR PRINT SHALL BE PROVIDED TO THE CITY FOR THEIR RECORDS.
- CONNECTION TO EXISTING CITY WATER MAIN SHALL BE "HOT TAP" BY THE CONTRACTOR UPON SATISFACTORY PRESSURE AND SANITARY TESTING.
- CONTRACTOR SHALL RESTORE RIGHT-OF-WAY TO ORIGINAL CONDITIONS.
- O. FIRE HYDRANT INSTALLATION SHALL BE IN ACCORDANCE WITH SPEC. WA-1. 1. A REVOCABLE ENCROACHMENT PERMIT SHALL BE OBTAINED PRIOR TO
- COMMENCING WORK IN THE RIGHT-OF-WAY. 2. NO FINAL TESTING SHALL OCCUR UNTIL ALL UNDERGROUND UTILITIES ARE IN PLAC
- 3. WATER PURIFICATION TESTS-2 TESTS, 24 HOURS APART. ZERO BACTERIA & ZERO ATYPICAL COUNTS FOR BOTH TESTS.
- 14. A PRESSURE REDUCER MUST BE INSTALLED ON THE 2" DOMESTIC WATER LINE IF WATER PRESURE EXCEEDS 80 P.S.I.
- 15. GATE VALVES SHOULD BE REILIENT SEAT TYPE.
- 16. WATER SERVICE CONNECTIONS SHALL BE CONSISTANT WITH FERNDALE STANDARD
- . WATER METER FURNISHED BY CITY AND PAID FOR BY CONTRACTOR.

CHECKED BY DATE

DATE

ASSISTED LIVING CONCEPTS FOR:

ASSISTED LIVING FACILITY, FERNDALE



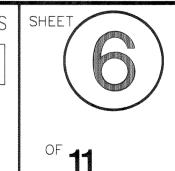


ENGINEERS INCORPORATED, P.S. CONSULTING ENGINEERS 851 COHO WAY, SUITE 307 BELLINGHAM, WA 98225 (206) 733-8888

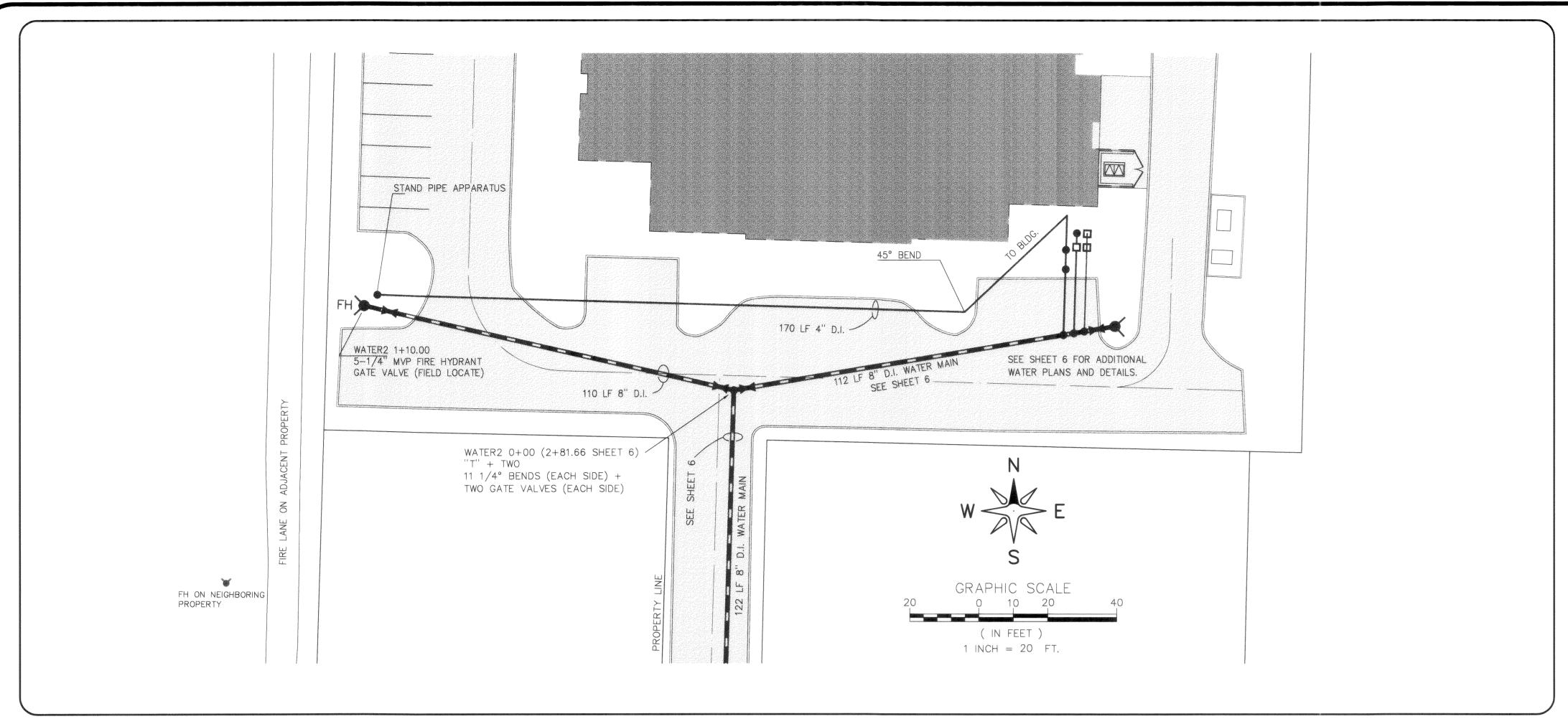
FERNDALE PLACE AS-BULT WATER PLAN AND PROFILE DEPARTMENT OF PUBLIC WORKS **FERNDALE APPROVED**

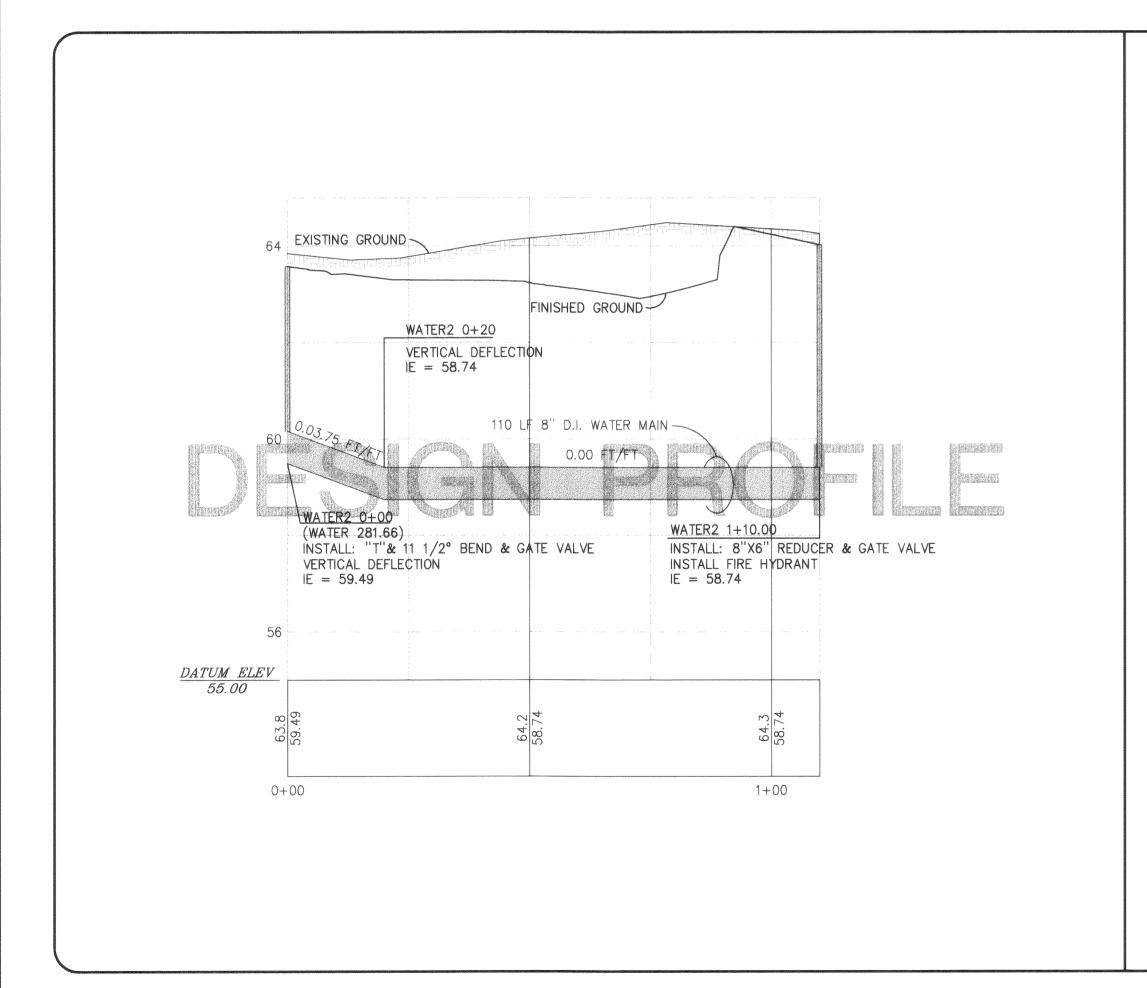
This plan has been reviewed and found to be in conformance with department standards.

CITY ENGINEER ...



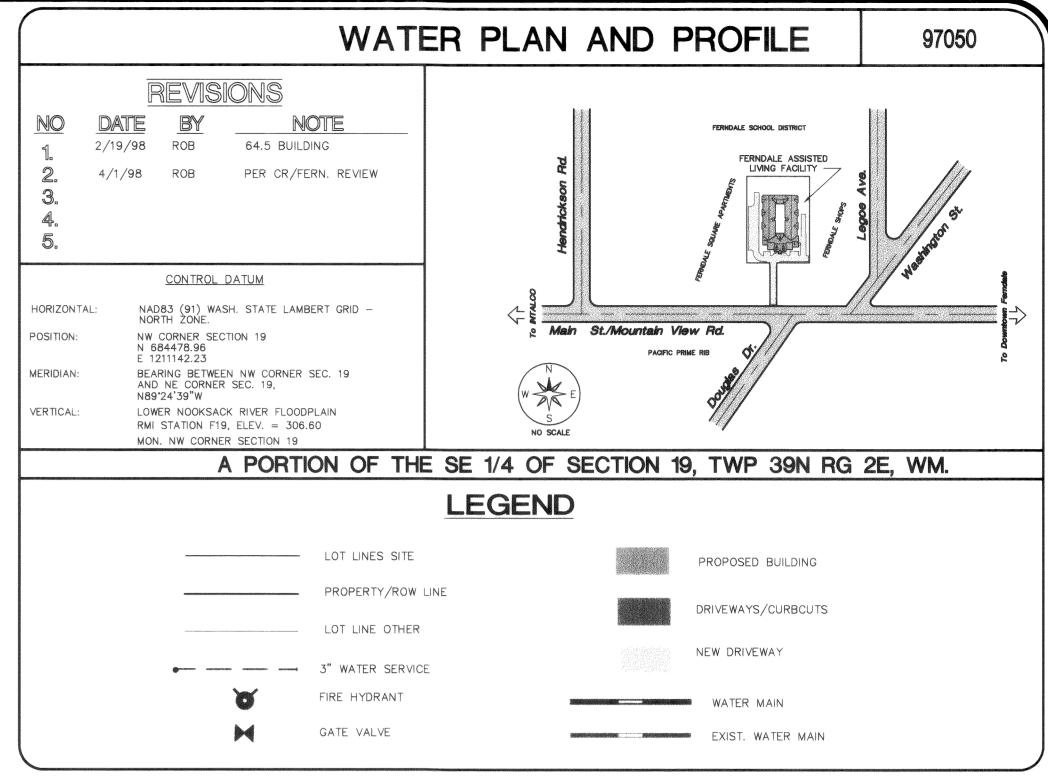


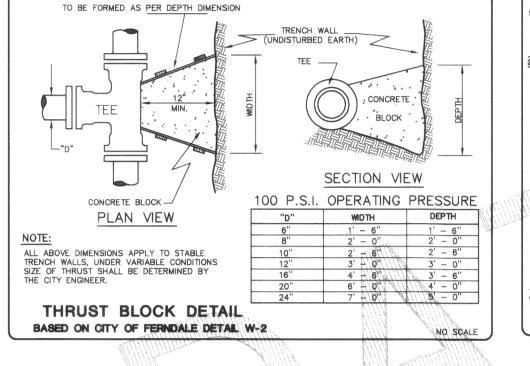


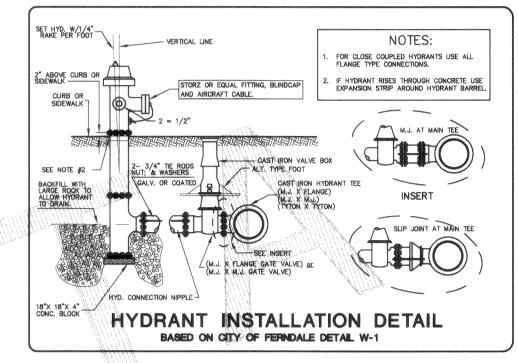


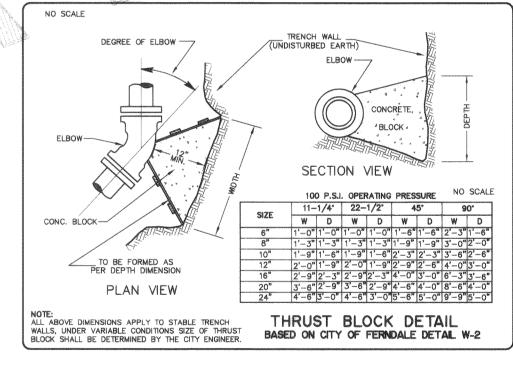
STAND PIPE APPARATUS TO BE APPROVED BY

CITY OF FERNDALE.



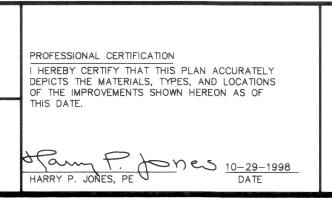


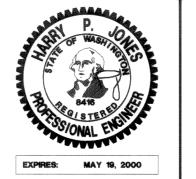




SEE WATER NOTES PAGE 6

CHECKED BY DATE	ASSISTED	LIVING FACILITY, FERNDALE
JOB # 97050	FOR:	ASSISTED LIVING CONCEPTS





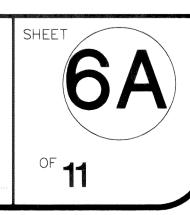


FERNDALE PLACE

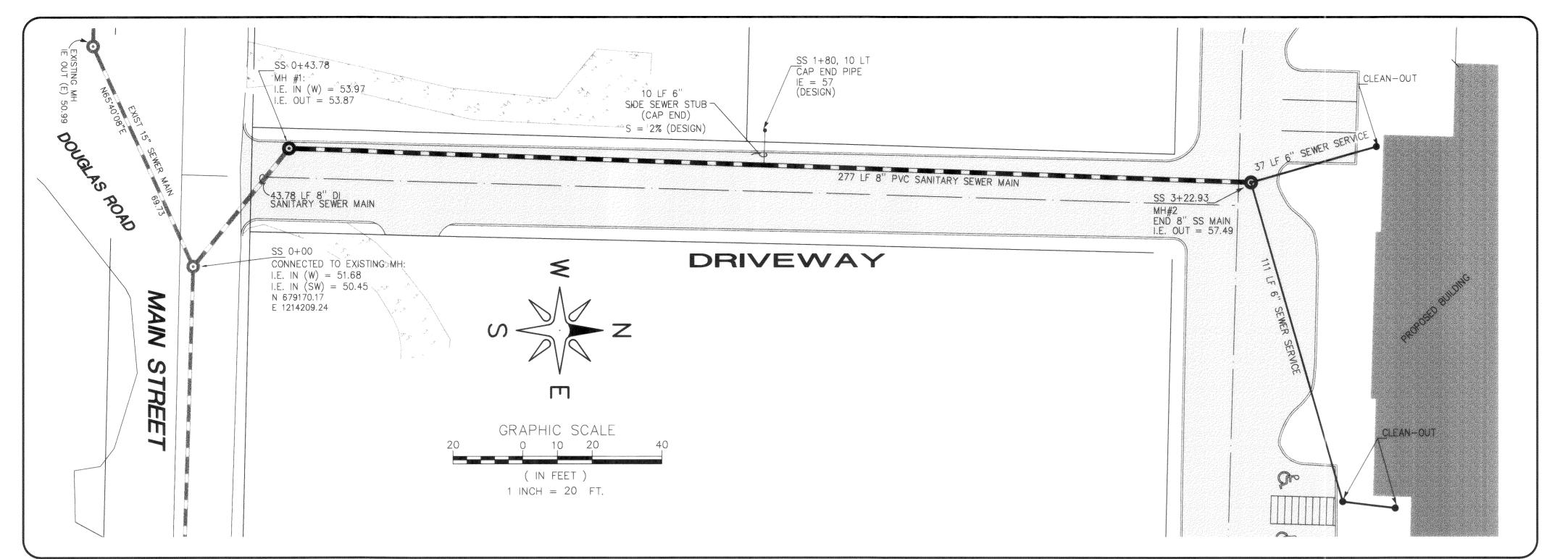
AS-BULT
WEST HYDRANT AND STAND PIPE
PLAN AND PROFILE

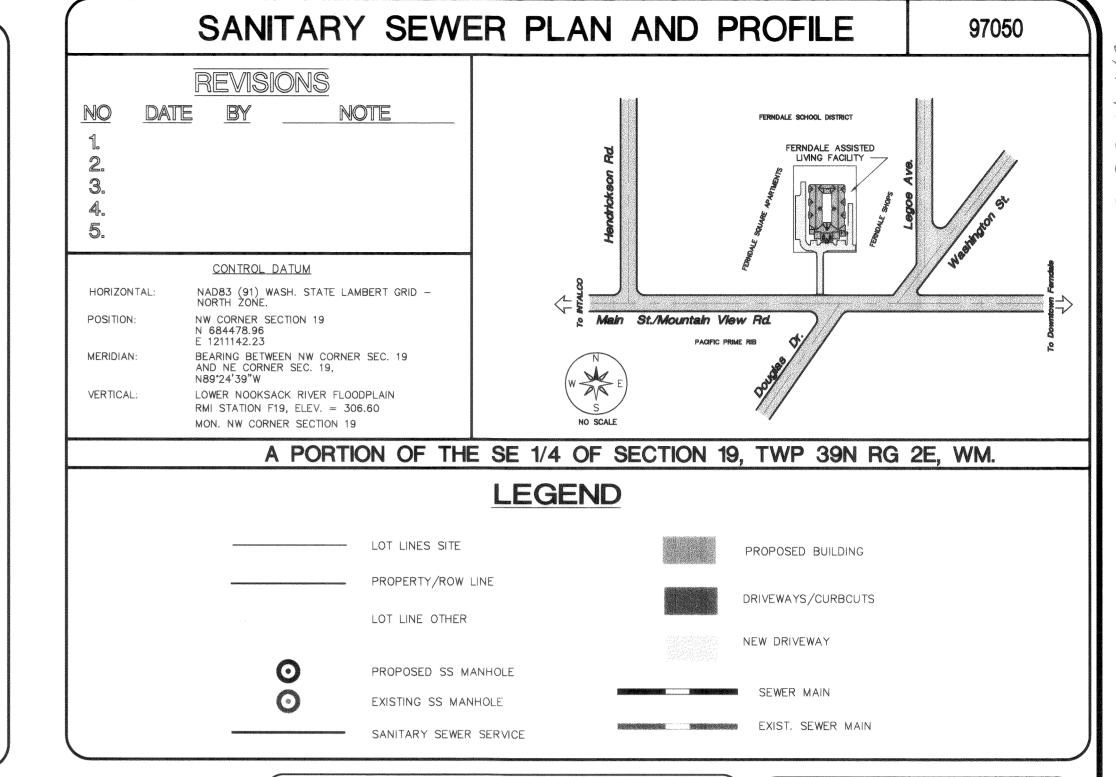
e: Aven		osinis enperiment		775000 S40000 WWW.AND Z (1224 AND 1224
	DEPARTMENT	OF	PUBLIC	WORK
	FERNDALE, WASHINGTON	AF	PRO	VED
	This plan has been to be in conformand standards.			

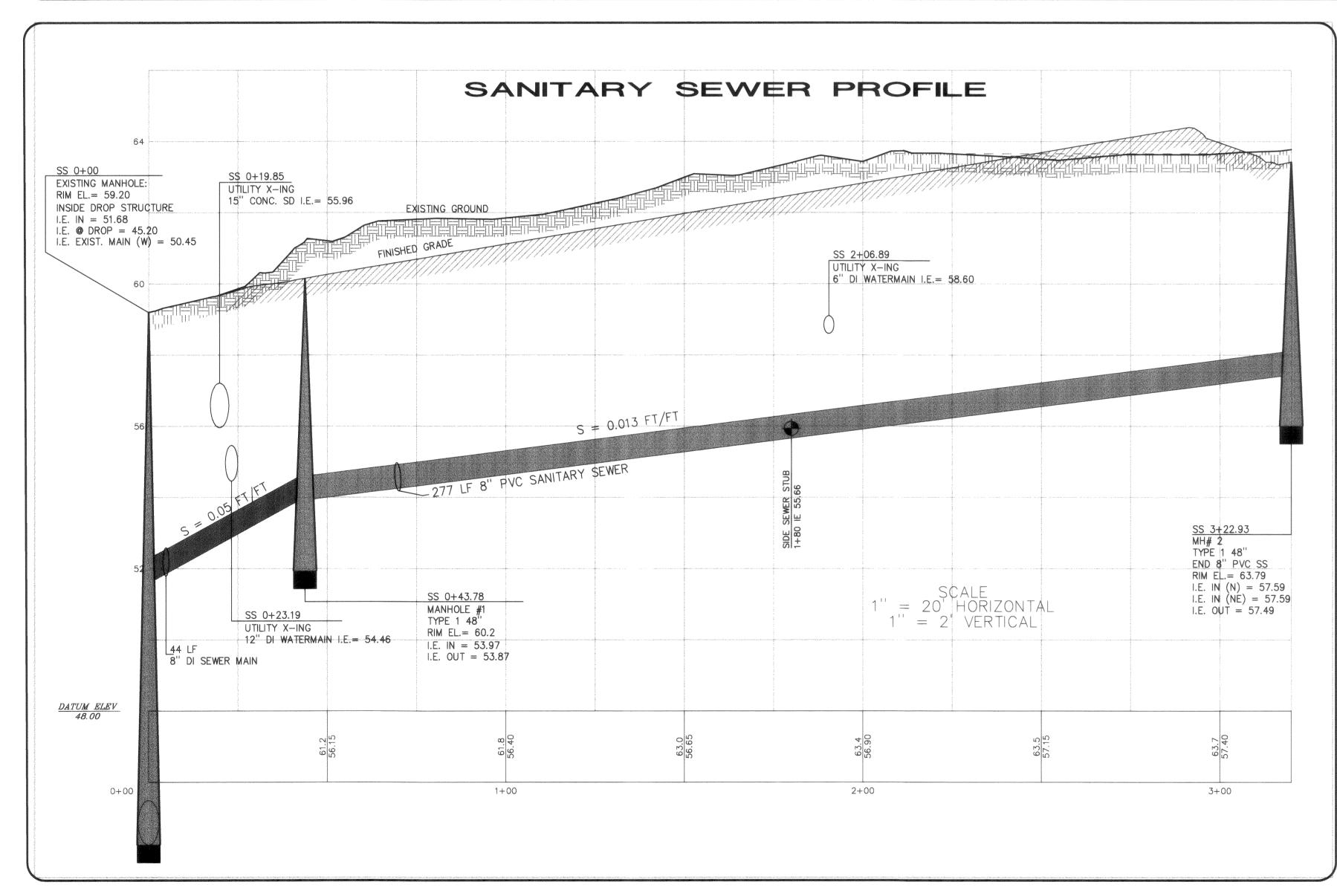
CITY ENGINEER.....

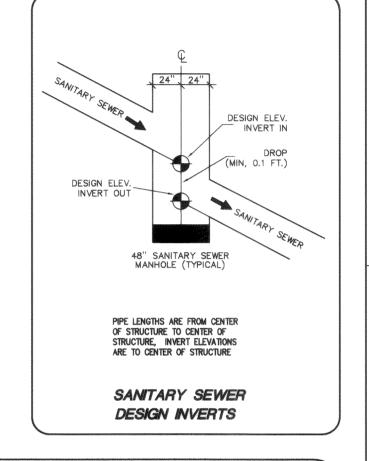


E:\97050\As-Built\AB-WTR2 Wed Oct 28 09:59:53







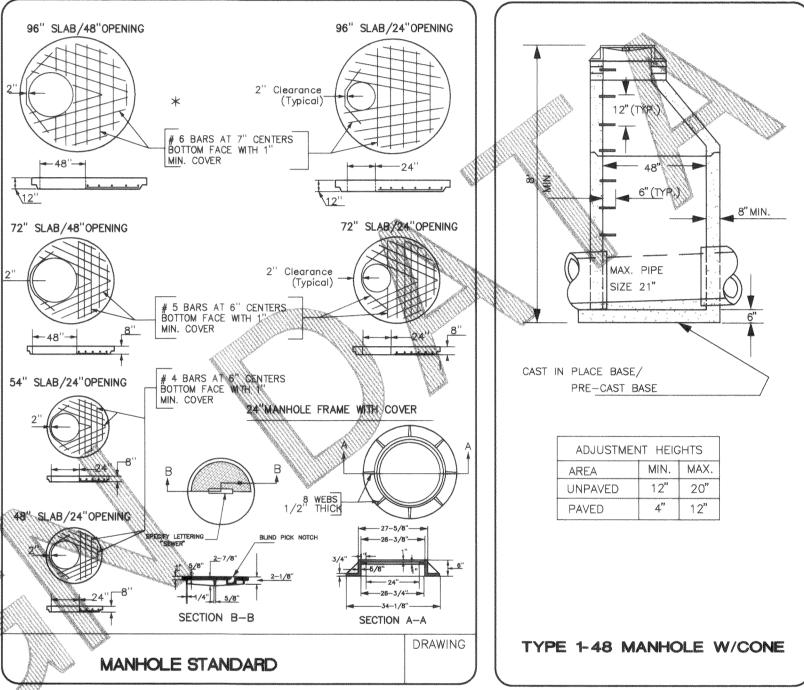


SANITARY SEWER NOTES

- ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH A.P.W.A. STANDARD SPECIFICATIONS, 1996 EDITION, AND SHALL BE SUBJECT TO APPROVAL BY THE CITY OF
- 2. ALL WORK MUST BE INSPECTED BY A REPRESENTATIVE OF THE CITY ENGINEERING DIVISION AND THE DESIGN ENGINEER, AND 24 HOUR NOTICE MUST BE GIVEN PRIOR TO
- 3. SEWER MAIN SHALL BE A MINIMUM 8 INCHES DIAMETER PVC CONFORMING TO THE PROVISIONS OF ASTM D 3034 AND INSTALLED TO CITY SPECIFICATIONS.
- 4. TESTING OF THE SEWER SYSTEM SHALL BE DONE IN THE PRESENCE AND UNDER THE SUPERVISION OF A CITY OF FERNDALE REPRESENTATIVE 5. ALL TRENCHES SHALL BE BACKFILLED WITH CLASS B BANK RUN GRAVEL OR SUITABLE NATURAL MATERIAL AS DIRECTED BY THE ENGINEER, AND COMPACTED TO 95%
- MODIFIED PROCTOR DENSITY. 6. A REVOCABLE ENCROACHMENT PERMIT SHALL BE OBTAINED PRIOR TO COMMENCING WORK IN THE RIGHT-OF-WAY
- 8. ALL MANHOLES SHALL BE INSTALLED PER CITY OF FERNDALE SS-2, & SS-4, AND SHALL BE PRECHANNELED.

7. A MYLAR PRINT SHALL BE PROVIDED TO THE CITY FOR THEIR RECORDS

- 9. SIDE SEWERS SHALL BE INSTALLED PER CITY OF FERNDALE STANDARDS. 10. NO FINAL TESTING UNTIL ALL UNDERGROUND UTILITIES ARE IN PLACE.
- MANHOLE CONES ARE TO BE OFFSET SUCH THAT LADDER RUNGS ARE ARE PARALLEL TO THE FLOW.
- 2. BEDDING SHALL BE PEA GRAVEL PER SS-1 13. SEE SHEET 13 FOR SANITARY SEWER DETAILS.
- 14. ALL CLEANOUTS SHALL BE INSTALLED PER CITY OF FERNDALE SS-5. 15. DROP STRUCTURES SHALL BE CONSTRUCTED PER CITY OF FERNDALE SS-10.



BEDDING SPECIFICATIONS FOR PVC PIPE

THE FOLLOWING SUPPLEMENTAL SPECIFICATION ARE TO BE USED IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, 1994 EDITION:

PEA GRAVEL — PEA GRAVEL BEDDING SHALL BE A CLEAN MIXTURE FREE FROM ORGANIC

GRADATION WHEN TESTED IN ACCORDANCE

U.S. STANDARD SIEVE SIZE

WITH ASTM D422:

MATTER AND CONFORMING TO THE FOLLOWING

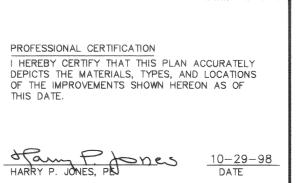
BEDDING FOR SEWERS, DRAINS AND CULVERTS FOR PVC PIPE-

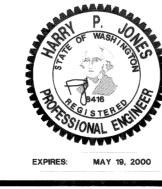
PERCENT PASSING, BY WT.

95-100

BEDDING MATERIAL FOR PVC PIPE SHALL BE PEA GRAVEL CONFORMING TO THE FOLLOWING SPECIFICATIONS.

DRAWN BY DATE CHECKED BY DATE	ASSISTED	LIVING FACILITY, FERNDALE
JOB # 97050	FOR:	ASSISTED LIVING CONCEPTS







FERNDALE PLACE AS-BULT SANITARY SEWER PLAN AND PROFILE



ENGINEER WILL SPECIFY CURRENT YEAR OF AVAILABLE SPECIFICATIONS UNDER WHICH PLANS WERE DESIGNED.

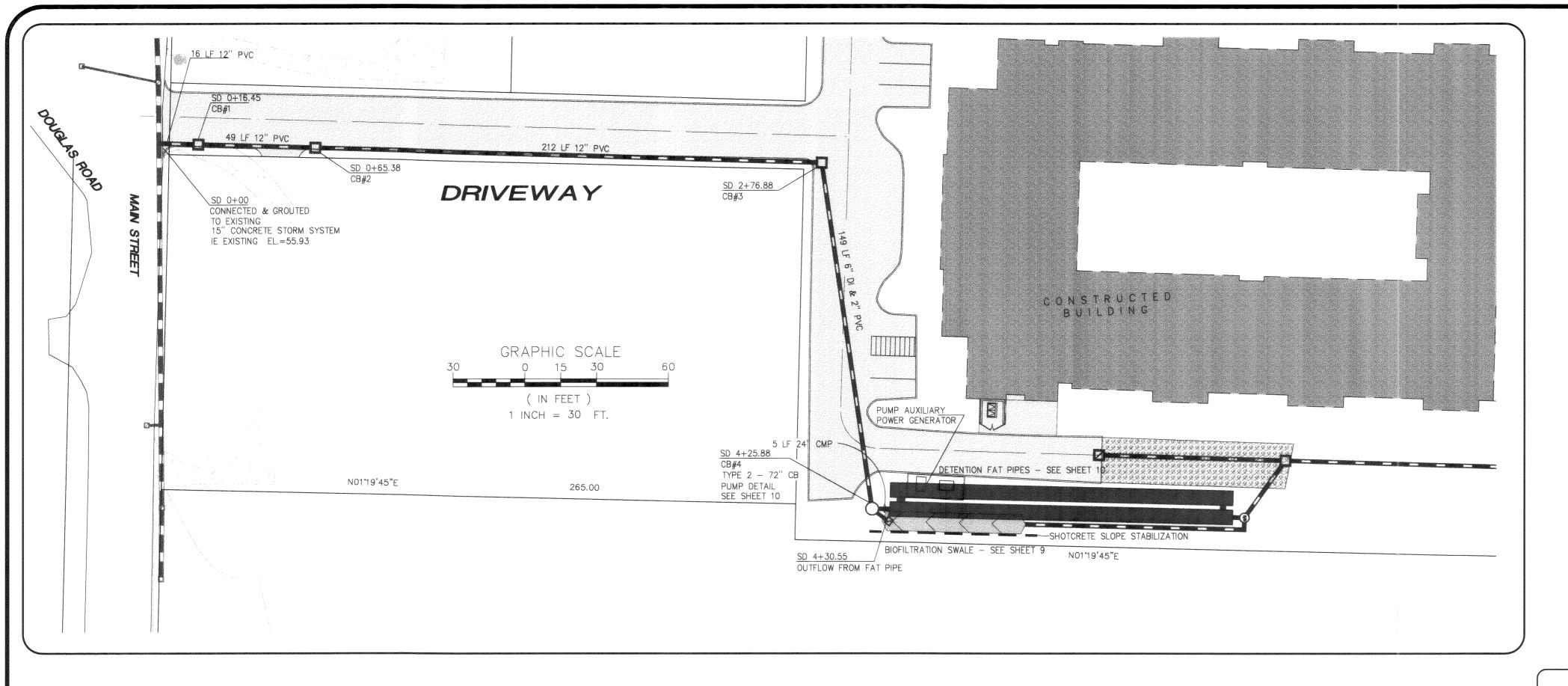
BANK RUN GRAVEL BACKFILL - CLASS B

FINAL BEDDING LIFT 6" MIN. ABOVE CROWN OF PIPE

- INITIAL BEDDING LIFT (4" MIN.)

- FOUNDATION (MAY NOT BE REQUIRED)

NOT TO SCALE



STORM DRAINAGE PROFILE

212 LF 12" PVC SD MAIN S = 0.0039 FT/FT

2+00

VERTICAL SCALE: 1" = 3"

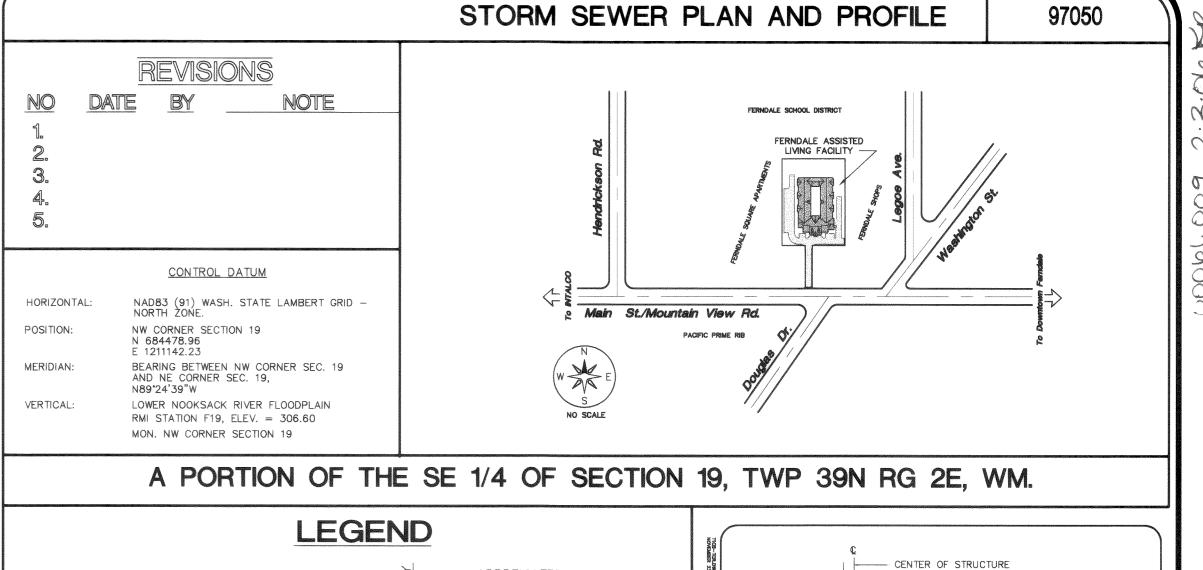
RIM EL= 63.99

(SOLID COVER)

I.E. (IN)= 58.47

I.E. (OUT)= 58.07

HORIZONTAL SCALE: 1" = 30"



ABBREVIATED LAMBERT

GRAVEL ACCESS ROAD

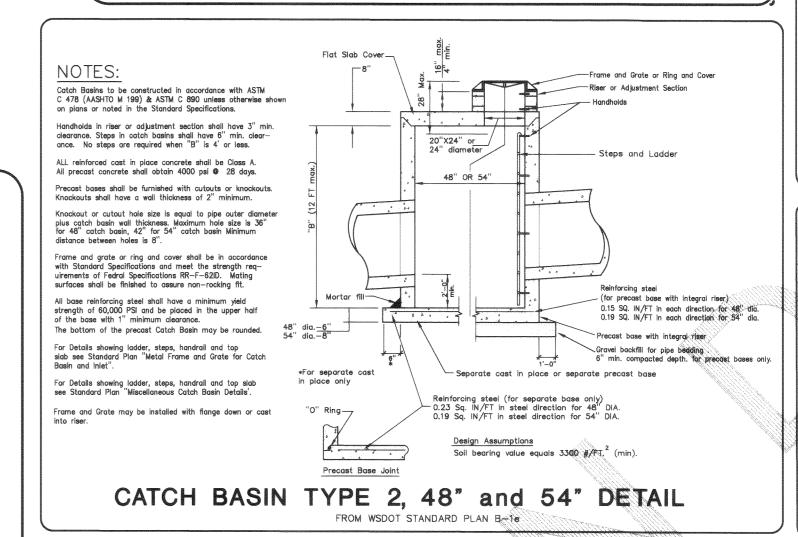
PROPOSED STORM MAIN

EXISTING STORM MAIN

NEW DRIVEWAY

CATCH BASIN

GRID COORDINATES



LOT LINES SITE

LOT LINE OTHER

EXISTING 12"

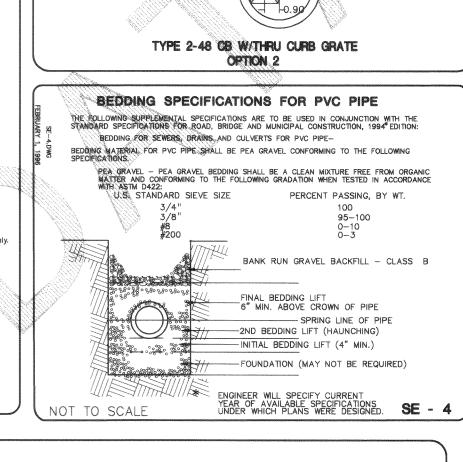
MAIN

PRESSURE WATER

PROPERTY/ROW LINE

DETENTION FAT PIPE

BIOSWALE



FACE OF CURB

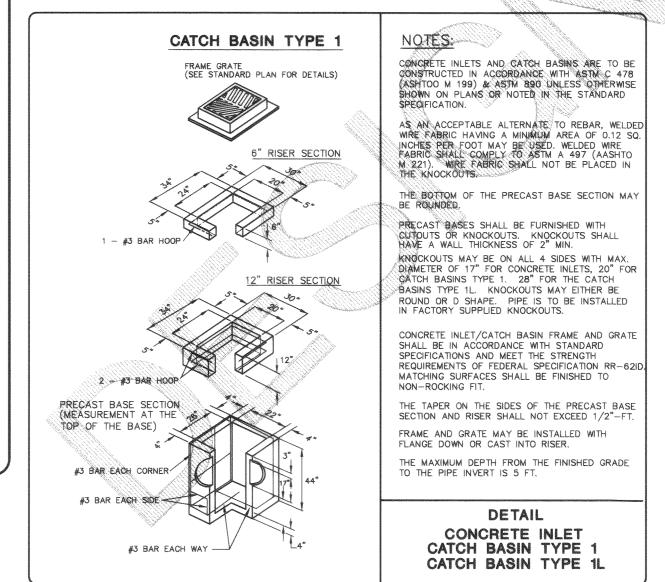
CURB DETAIL

TYPE 1 CB W/THRU CURB GRATE

FACE OF CURB

0.46

CURB DETAIL



STORM NOTES

- 1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH A.P.W.A STANDARD SPECIFICATIONS, 1996 EDITION, AND SHALL BE SUBJECT TO APPROVAL BY THE CITY OF FERNDALE.
- 2. STORM PIPE 15 INCH DIAMETER AND SMALLER SHALL BE PVC CONFORMING TO STANDARD SPEC. 9-0512. STORM PIPE LARGER THAN 15 INCH DIAMETER SHALL BE 16 GAUGE CORRUGATED STEEL WITH TREATMENT 5, ALL INSTALLED TO CITY SPECIFICATIONS.
- 3. ALL TRENCHES SHALL BE BACKFILLED WITH GRANULAR MATERIAL AND COMPACTED TO 95% OF OPTIMUM DENSITY.
- 4. INLETS AND CATCH BASINS SHALL BE IN ACCORDANCE WITH CITY DRAWING WS-B1.
- 5. MYLAR PRINT SHALL BE PROVIDED TO THE CITY FOR THEIR RECORDS, PER SE-3.

SEE SHEET 10 FOR DETENTION FAT PIPE DETAILS

DRAWN BY DATE

ASSISTED LIVING FACILITY, FERNDALE

PROFESSION, I HERBY CE DEPICTS THE OF THE IMPRITED DATE.

JOB # 97050

FOR: ASSISTED LIVING CONCEPTS

SD 0+16.45 CB# 1 (TYPE 1)

RIM EL. = 60.03

CONNECTED TO EXIST.

15" CONC. SD PIPE AT EXIST. I.E. = 55.93 (DESIGN)

PVC SD MAIN \

S = 0.052 FT/FT

<u>DATUM ELEV</u> 50.00 I.E. (N & S)= 56.79

PVC SD MAIN

S = 0.0086 FT/FT

CITY AS-BUILT WATER MAIN LOCATION

ASSUMED WATER MAIN LOCATION

SD 0+65.38

RIM EL.= 61.49

I.E. (IN)= 57.25 I.E. (OUT)= 57.21

CB #2

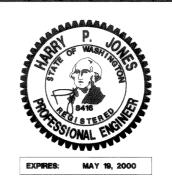
(TYPE 1)

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN ACCURATELY DEPICTS THE MATERIALS, TYPES, AND LOCATIONS OF THE IMPROVEMENTS SHOWN HEREON AS OF THIS DATE.

| 10-29-98 | DATE |

3+00



149 LF 6" D.I. AND 2" PVC ABOVE

\$ = 0.0017 FT/FT

CB #4, (TYPE 2-72")

I.E. IN FROM CB#6 = 55.41 I.E. IN FROM VAULT = 53.26

E. OUT = 58.72

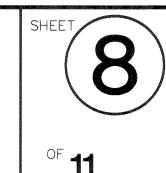
CONSULTING ENGINEERS

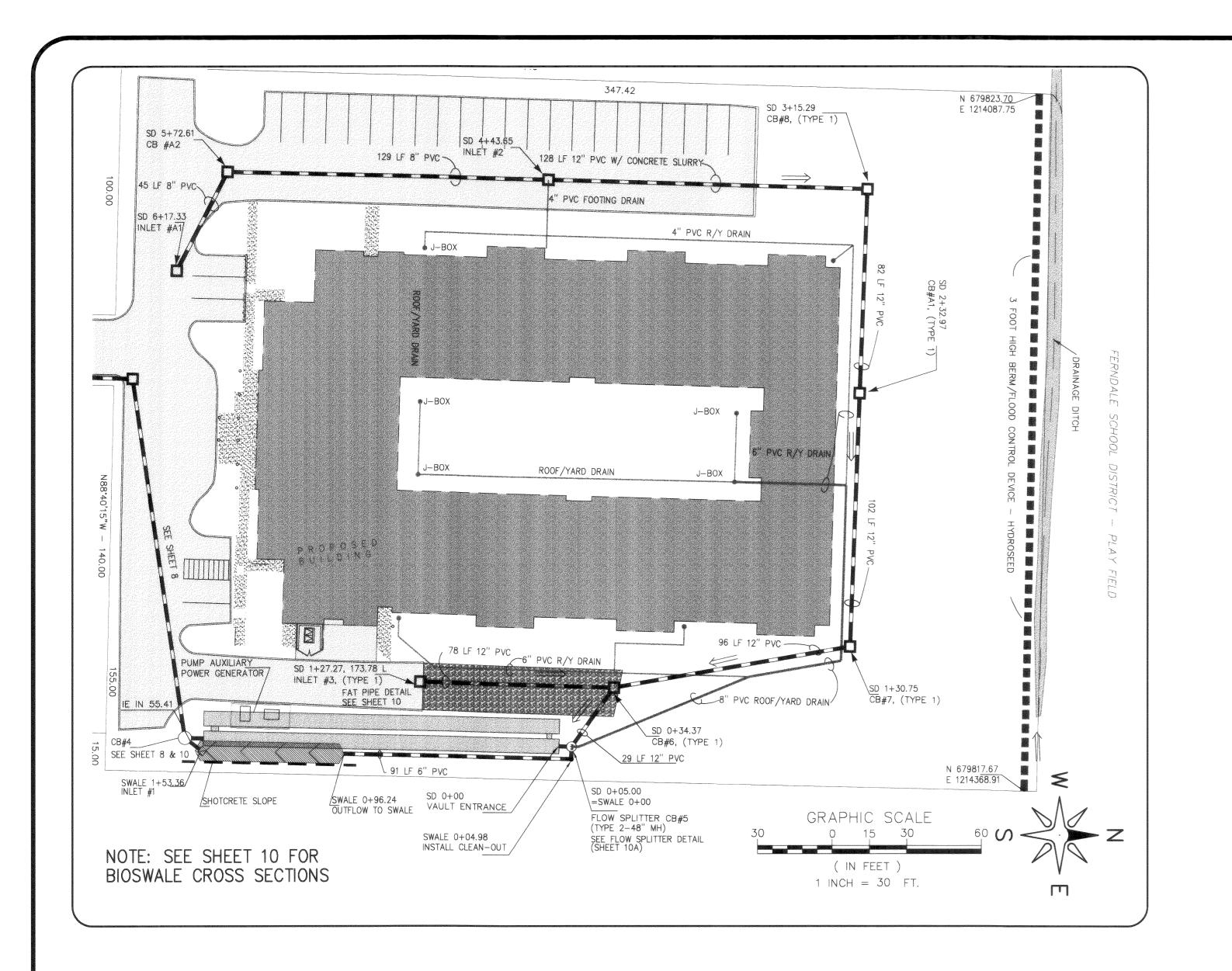
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (206) 733-8888

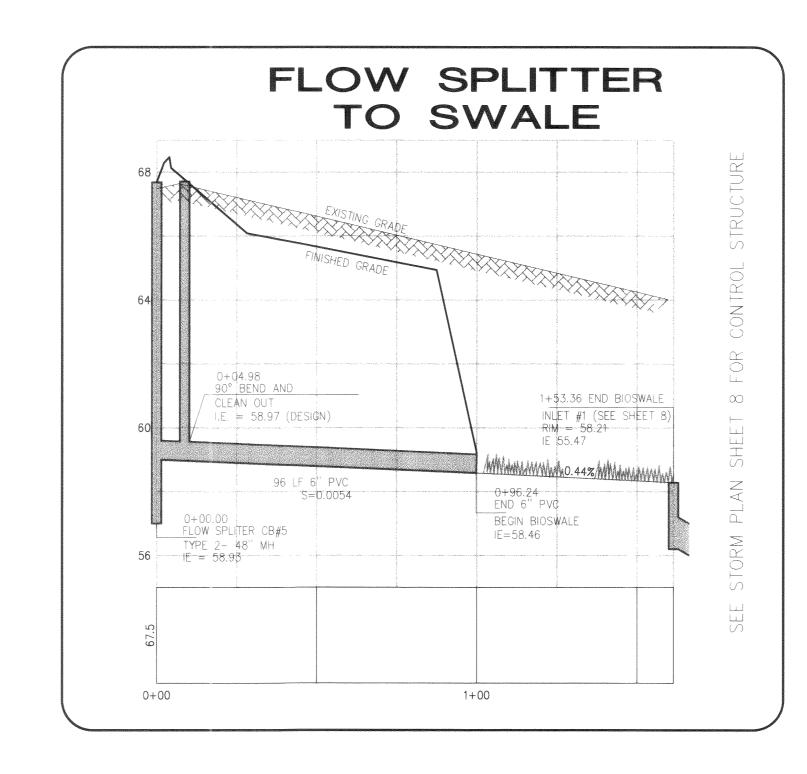
SD 4+30.55

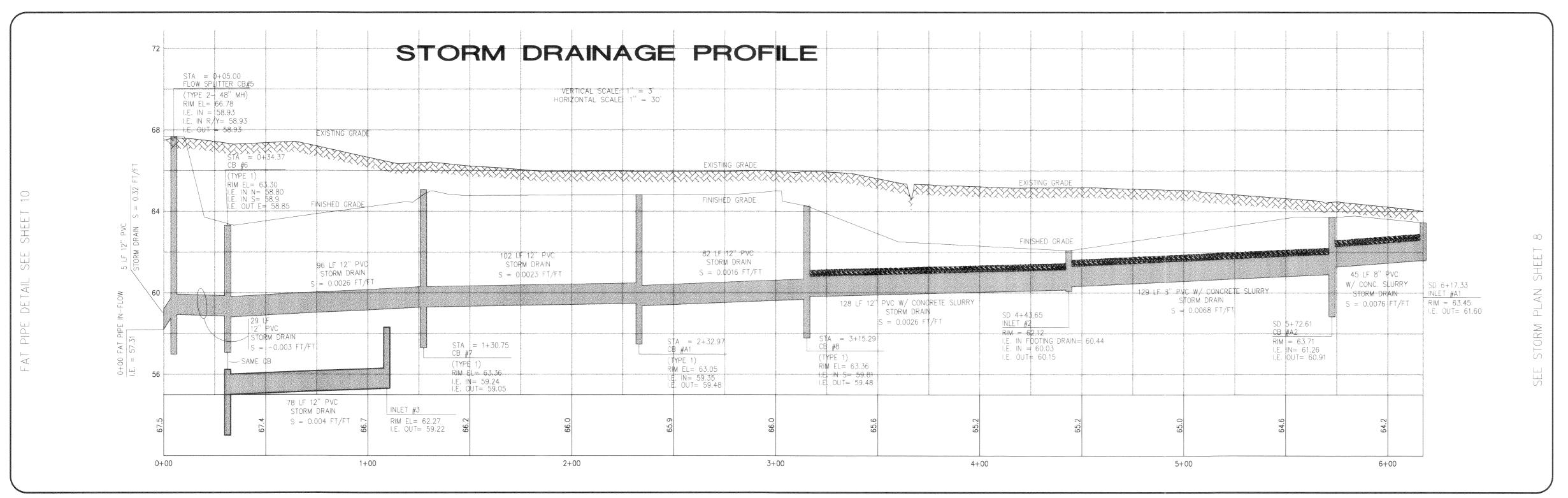
I.E. = 53.26

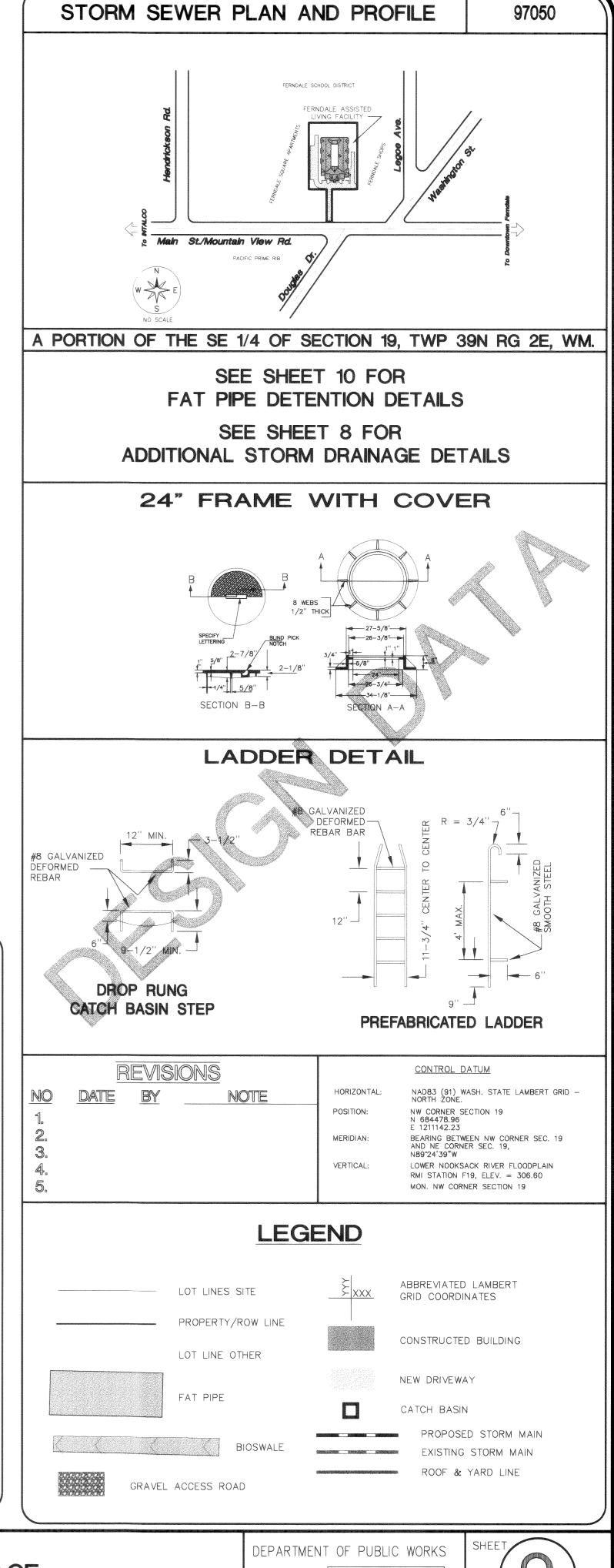
FERNDALE PLACE
AS-BUILT
STORM DRAINAGE PLAN AND PROFILE











97050\As-Built\AB-STRM2 | wed | Oct | 28 | 10; 26; 24 | 1998 | Rob |

JOB # 97050

FOR:

ASSISTED LIVING FACILITY, FERNDALE

ASSISTED LIVING CONCEPTS

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN ACCURATELY
DEPICTS THE MATERIALS, TYPES, AND LOCATIONS
OF THE IMPROVEMENTS SHOWN HEREON AS OF
THIS DATE.

10-29-98

HARRY P. JONES, PE DATE



CONSULTING ENGINEERS

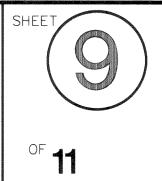
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (206) 733-8888

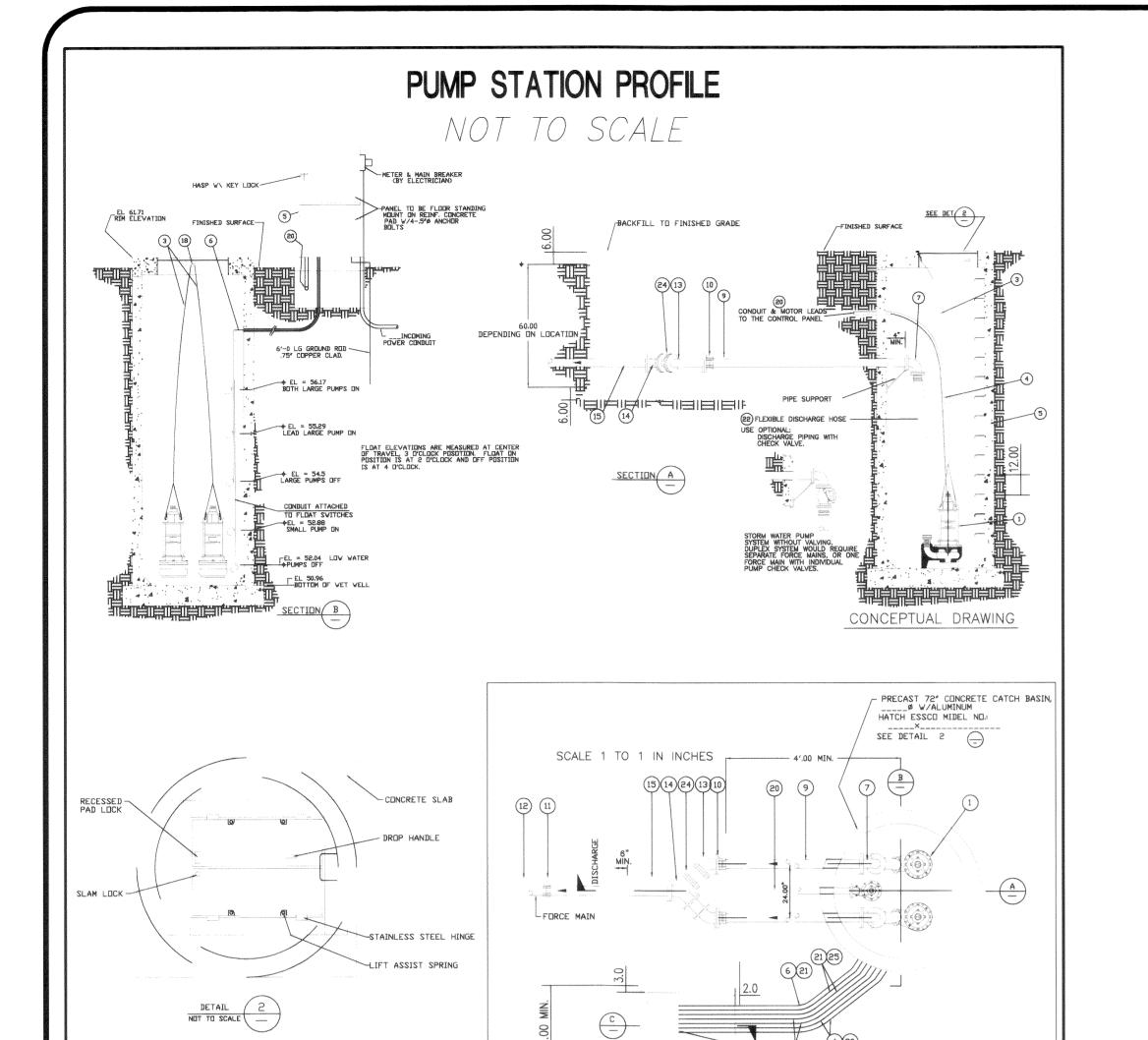
FERNDALE PLACE
AS-BULT

STORM DRAINAGE PLAN AND PROFILE SHEET 2



CITY ENGINEER ...





THE PUMP INFORMATION GIVEN ON THIS SHEET IS PROVIDED BY ESSCO PUMPS & CONTROLS. IT IS REPRESENTATIVE OF A TYPICAL PUMP STATION, FOR FURTHER DETAIL CONTACT JONES ENGINEERS, H.D. FOWLER, OR ESSCO PUMPS CONCERNING THE FIRSTMARK PUMP STATION. MORE DETAILED PUMP SPECIFICATIONS ARE GIVEN ON SHEET 10A.

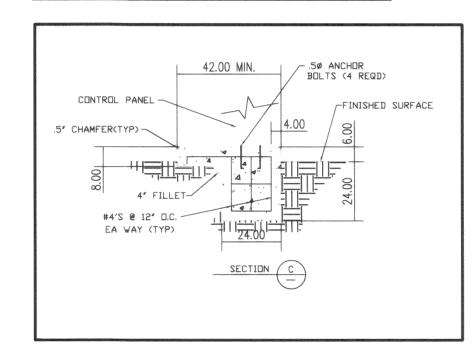
LINCOMING POWER CONDUIT

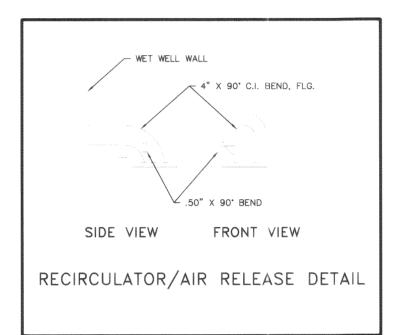
CONCRETE PAD

SEWER LIFT STATION

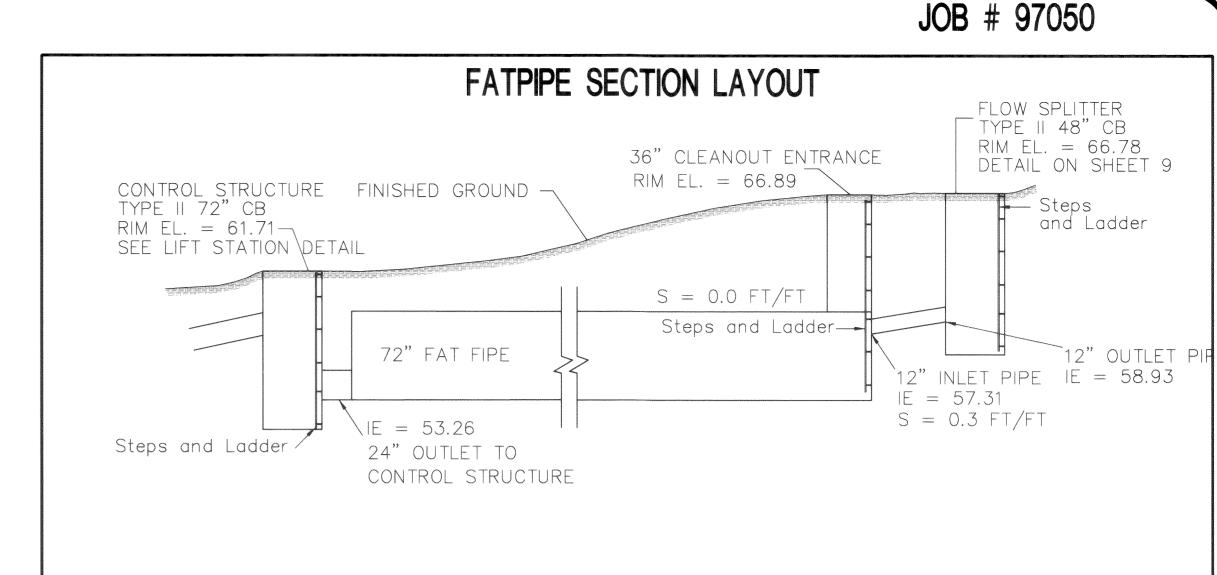
BIOSWALE CROSS SECTIONS

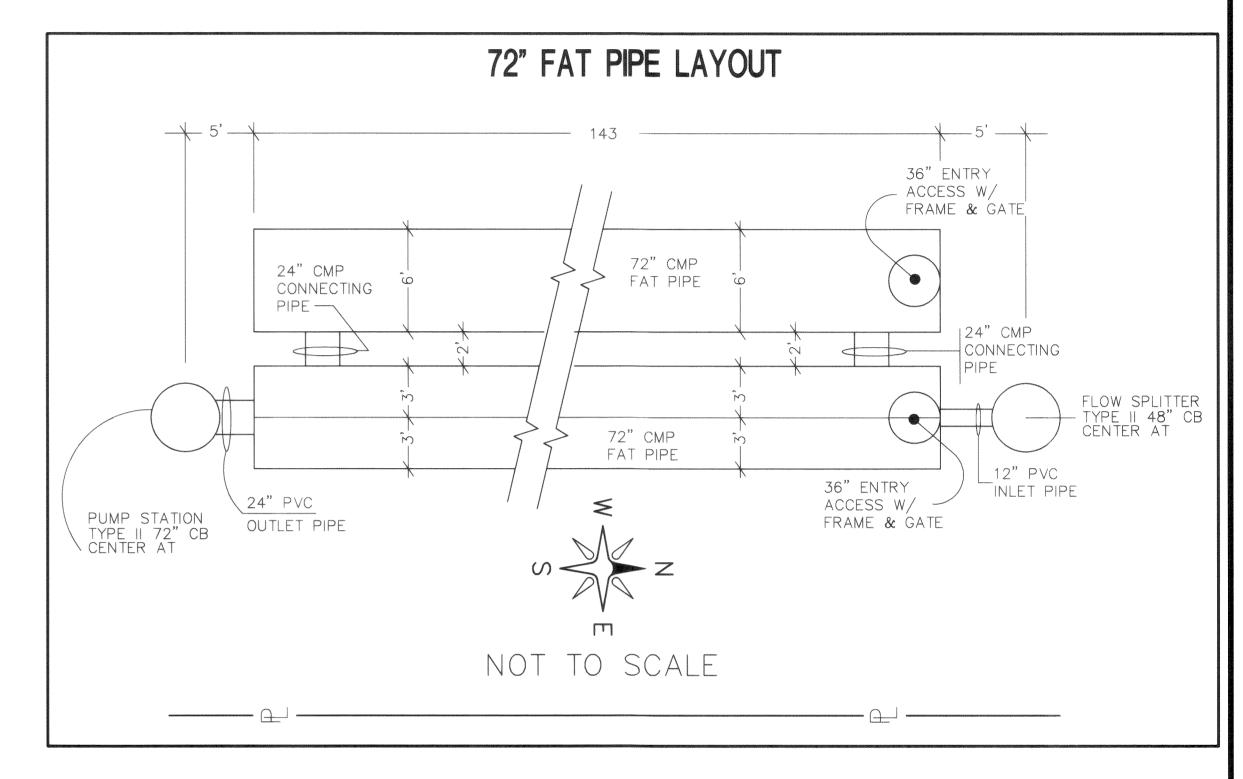
MATERIALS SCHEDULE SIZE QT THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. SUBMERSIBLE SEWAGE PUMP, ESSCO MODEL SIZE _____ HEAVY DUTY NON-CLOG VORTEX TORQUE FLUID PUMP. GPM AT ____ FT. T.D.H.; RELIANCE SUBMERSIBLE MOTOR. ___ H.P. AT ____ R.P.M. U.L. TEXP. CLASS 1, GROUP 10, W/25 FT. OF 9 WIRE CONTROL & POWER CABLE. TWO SEPARATE SEALS, DIL LUBRICATED 30 DAY WARNING SYSTEM, N/C THERMAL PROTECTION W/ ESSCO COOL AGIVEN® APARATUS, (PATENT NO. 4,134,711) SUPERVISON FOR INSTALLATION, START--UP AND TESTING TO BE PROVIDED BY MANUFACTURER'S REPRESENTATIVE AS PART OF THE EQUIPMENT PURCHASE CONTRACT. CONCRETE SHALL BE PORTLAND CEMENT CONCRETE AND SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I. AT 28 DAYS. LIFTING CABLE, .3125" x .4375" x ______COVERED, 6300" lb. TENSILE STRENGTH. ALL FITTINGS AND VALVES SHALL BE CAST IRON, CLASS 125. ALL ELECTICAL WIRING AND EQUIPMENT INSTALLED IN THE "WET WELL" SECTION MUST COMPLY W/ ARTICLE 22 OF THE ELECTRICAL SAFETY ORDERS FOR CLASS 1, DIVISION 1, HAZARDOUS LOCATION PROVISIONS OF THE "NATIONAL ELECTRICAL CODE" AND REQD) FOR EACH PUMP MOTOR PUMP CONTROL PANEL, ESSCO STYLE 'D', NEMA 3 R. U.L. TESTED, PRESET ECECTRICAL CONTROL PANEL, INDICATING LIGHTS AS REQD, RELAYS, HOA, COMBINATION STARTERS WA OF MATERIALS SHALL CONFORM IN EVERY RESPECT TO THE "STANDARD PLANS AND SPECIFICATIONS; OF THE CITY OF WASH DOWN AND VACUUM BREAKER (ESSCO PATENT) FLANGED × PLAIN END CAST IRON SPOOL. ALL NUTS, BOLTS, AND WASHERS SHALL BE 304 S.S./316 S.S. NO EXCEPTIONS. FLANGED CAST IRON COUPLING ADAPTOR (BAKER STYLE 601 OR APPROVED EQUAL) FLANGED SWING CHECK VALVE, W/ LEVER & WEIGHTKIBBM FLANGED CAST IRON 45° BEND FLANGED CAST IRON TRUE WYE. -POWER CABLE .75"ø CONDUIT (PVC SCH. 80 OR APPROVED EQUAL FLEXIBLE DISCHARGE HOSE 44 __" 304 STAINLESS STL. SCH. 40 GUIDE PIPE FLANGED BY FLANGED CIP SPOOL (SPACER) FLOAT SWITCHES .3750 CORD BRACKET SLACK GRIP-

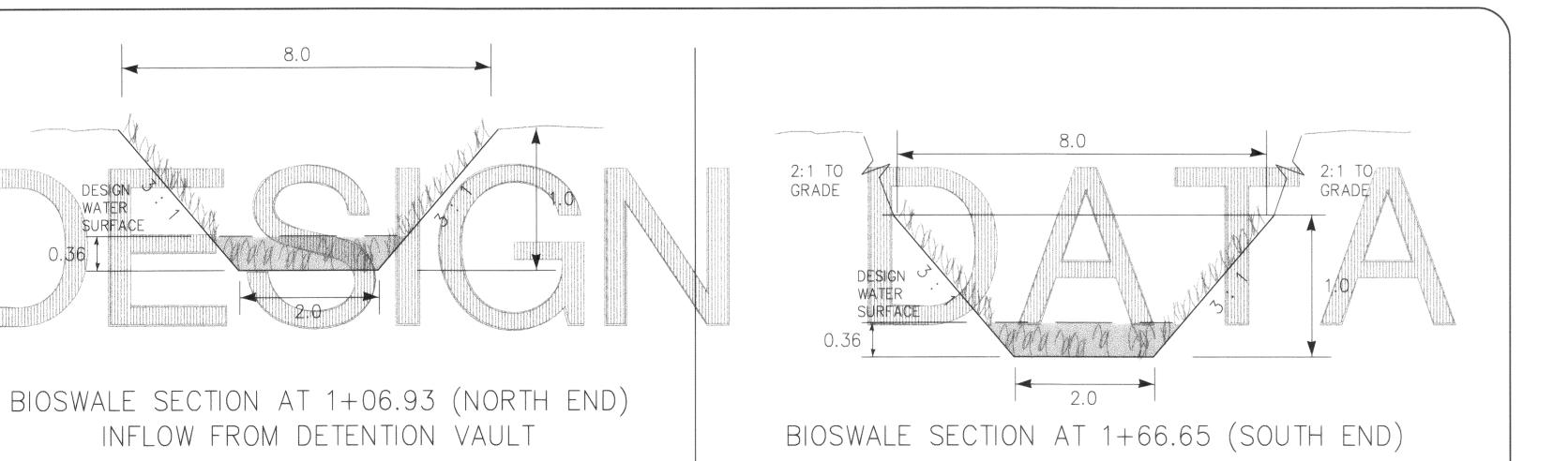


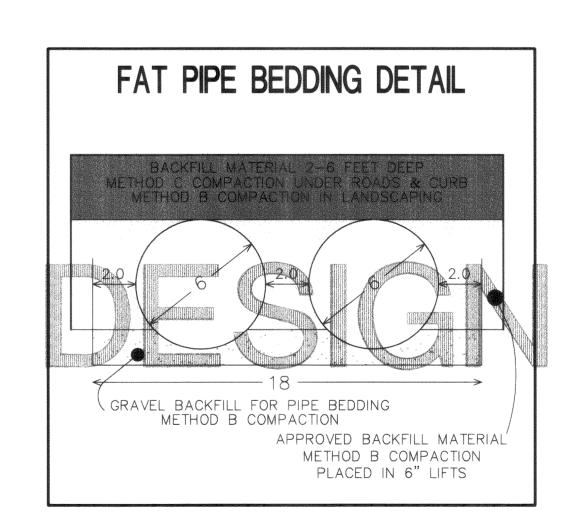


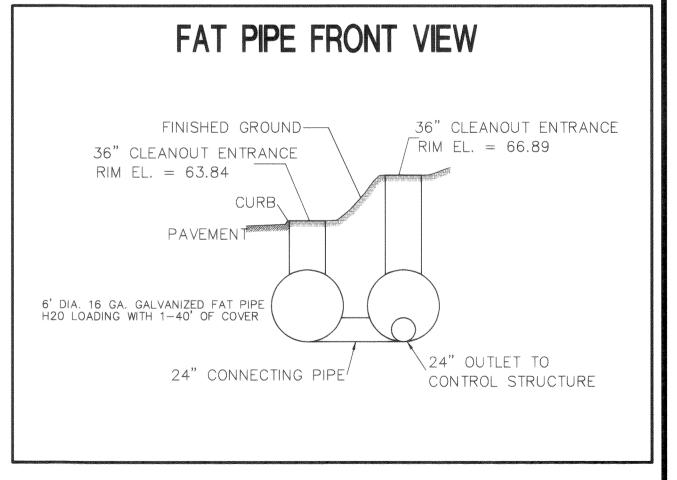
As shown on sheet 11 the minimum required detention volume for this site is 5769 cubic feet. For a 6 foot diameter fat pipe with water depth of he stages for which the volumes of the design storms are contained in the fat pipe an stage vs. end area method was used. The stages for whi the 2 yr design storm volume is contained is 2.48 feet, elevation 56.17. The stage at which the 10 yr design storm volume is contained is 2.80 feet elevation 56.49. The stage for the 100 yr design storm is 5.46 feet, elevation 59.15, which allows for approximately one half of a foot of freeboard. conjunction with its counterpart to release at a rate equal to the 100 yr design storm. The pump station will be equipped with a run light, a Hand—Off—Automatic selector switch, and will need to be provided with a GENTRAN to provide alternate power from the generator unit which is going to be placed on the site. Complete failure of this system will depend on two power supplies failing, failure of all three pumps, the run light going unnoticed, and various other safety devices failing.











CHECKED BY	DATE
DRAWN BY	DATE

ASSISTED LIVING FACILITY, FERNDALE

ASSISTED LIVING CONCEPTS FOR: JOB # 97050

PROFESSIONAL CERTIFICATION HEREBY CERTIFY THAT THIS DOCUMENT, CONSISTING OF PLANS, DESIGNS, AND SPECIFICATIONS, WAS PREPARED UNDER MY PERSONAL SUPERVISION AND MEETS CITY OF FERNDALE CODES AND STANDARDS AND FURTHER THAT SAID PLANS MEET THE GENERALLY ACCEPTED STANDARDS OF PRACTICE HARRY P. JONES, PLS DATE

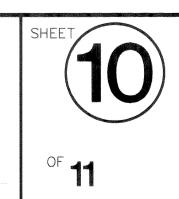


JONES ENGINEERS INCORPORATED, P.S. CONSULTING ENGINEERS 851 COHO WAY, SUITE 307 BELLINGHAM, WA 98225 (206) 733-8888

FERNDALE PLACE AS-BUILT DETENTION FAT PIPE DETAIL

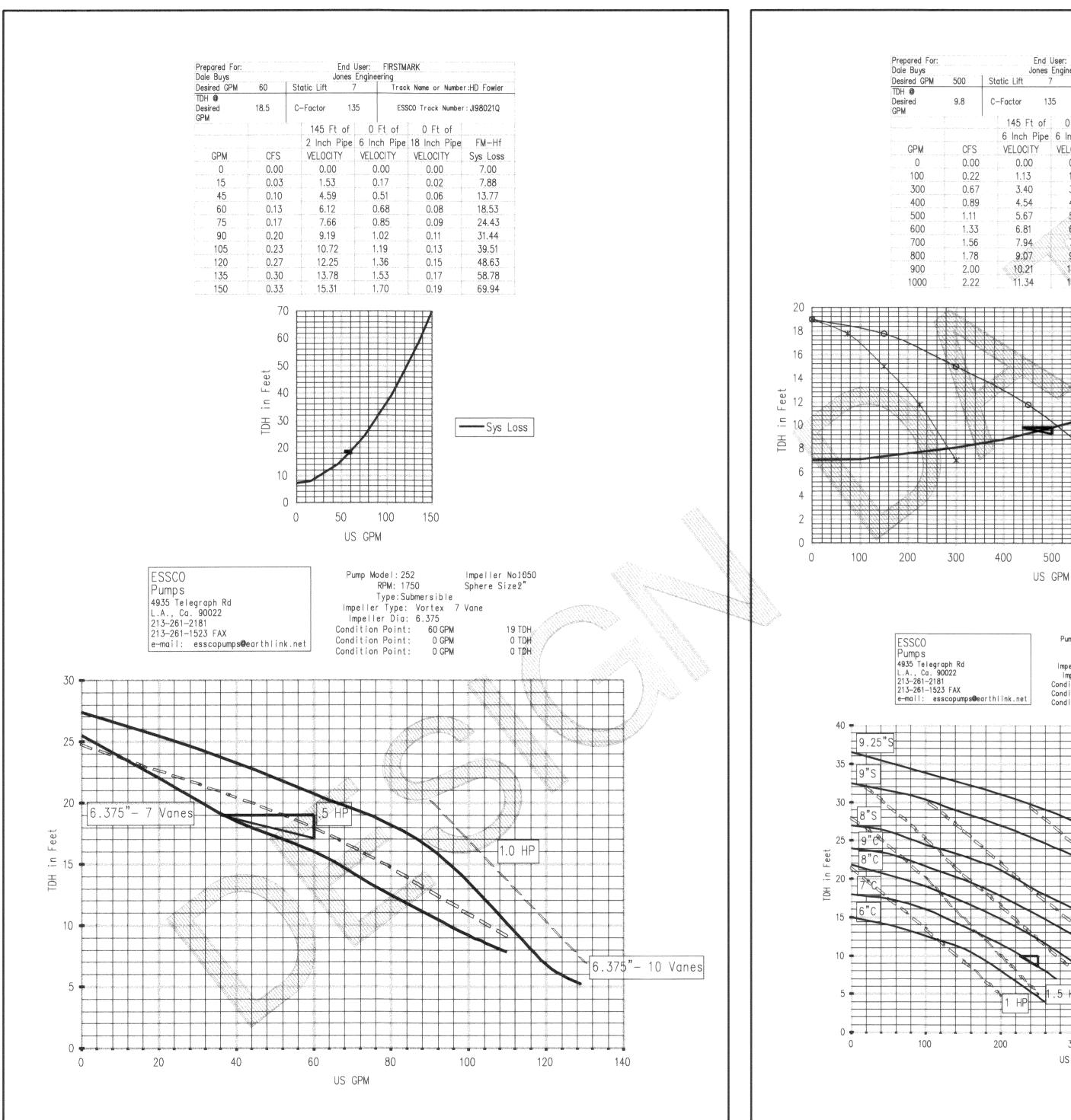
EPARTMENT	OF	PUBLIC	WORKS
ERNDALE, ASHINGTON	AF	PROV	VED
nis plan has been be in conforman andards.			

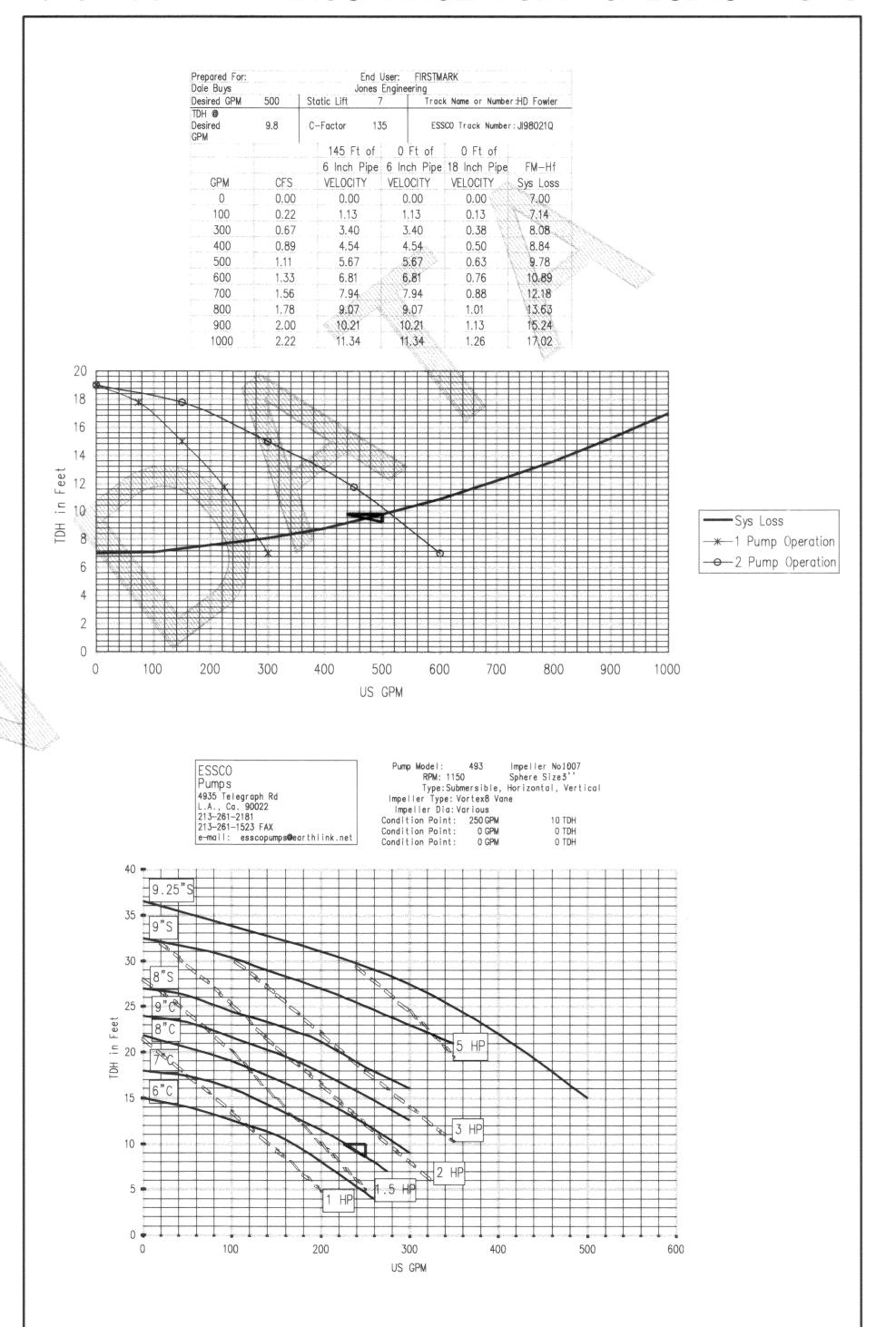
TY ENGINEER.....



2 YEAR DISCHARGE PUMP SPECIFICATIONS





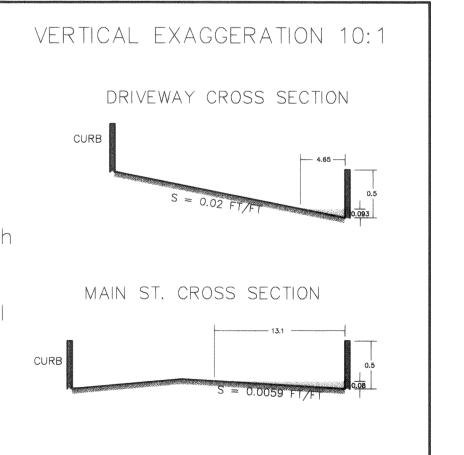


TYPE 2 48" CB FOR FLOW SPLITTER RIM EL. = 66.78Flat Slab Cover Ring and Cover -Riser or Adjustment Section - Handholds TOP VIEW — Steps and Ladder TOP OF WIER EL. = 59.98TO BIOSWALE 8" PVC IE = 58.98 CAP END AND DRILL 2.75" HOLE ON CENTER Reinforcing steel Mortar fill -(for precast base with integral riser) 0.15 SQ. IN/FT in each direction for 48" dia. 48" dia.-6" Precast base with integral riser
 Gravel backfill for pipe bedding . $\frac{1}{1-0}$ 6" min. compacted depth. for precast bases only. -Seperate cast in place or seperate precast base Reinforcing steel (for seperate base only) 0.23 Sq. IN/FT in steel direction for 48" DIA. Design Assumptions Soil bearing value equals 3300 #/FT. (min). Precast Base Joint ADAPTED FROM WSDOT STANDARD PLAN B-1e NOT TO SCALE Catch Basins to be constructed in accordance with ASTM Frame and grate or ring and cover shall be in accordance with Standard Specifications and meet the strength req-C 478 (AASHTO M 199) & ASTM C 890 unless otherwise shown uirements of Fedral Specifications RR-F-62ID. Mating on plans or noted in the Standard Specifications. surfaces shall be finished to assure non-rocking fit. Handholds in riser or adjustment section shall have 3" min All base reinforcing steel shall have a minimum yield clearance. Steps in catch basins shall have 6" min. clearstrength of 60,000 PSI and be placed in the upper half ance. No steps are required when "B" is 4' or less. of the base with 1" minimum clearance. ALL reinforced cast in place concrete shall be Class A. The bottom of the precast Catch Basin may be rounded. All precast concrete shall obtain 4000 psi @ 28 days. For Details showing ladder, steps, handrail and top slab see Standard Plan "Metal Frame and Grate for Catch Precast bases shall be furnished with cutouts or knockouts. Knockouts shall have a wall thickness of 2" minimum. Knockout or cutout hole size is equal to pipe outer diameter For Details showing ladder, steps, handrail and top slab plus catch basin wall thickness. Maximum hole size is 36" see Standard Plan "Miscellaneous Catch Basin Details'. for 48" catch basin, 42" for 54" catch basin Minimum distance between holes is 8". Frame and Grate may be installed with flange down or cast

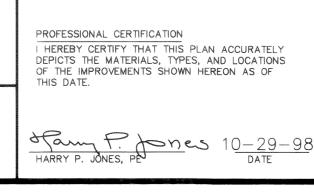
SYSTEM FAILURE ANALYSIS

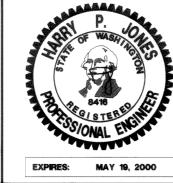
Using Manning's equation the depth of flow down the site drive and Main St. can be found for a worst case situation where there is a total system failure. The water will enter the driveway without entering the building due to the fact that the crest elevations in the parking lot are lower than the building slab. At a rate of 500 gpm, 1.12 cfs, the shown water profiles will exist on the roadways of concern. The velocity and depth of flow on the driveway will be 2.07 fps and 0.093 feet, respectively. The velocity and flow depth on Main St. will be 2.22 fps and 0.08 feet, repectively.

This situation will only exist during the 100 year storm, if all three pumps malfunction simultaneously and the water does not enter one of the catch basins along the driveway curb before entering Main St.. In conclusion, the probability of creating a public inconvenience from the failure of this private utility is very minimal.



DRAWN BY DATE CHECKED BY DATE	ASSISTED LIVING FACILITY, FERNDALE
JOB # 97050	FOR: ASSISTED LIVING CONCEPTS





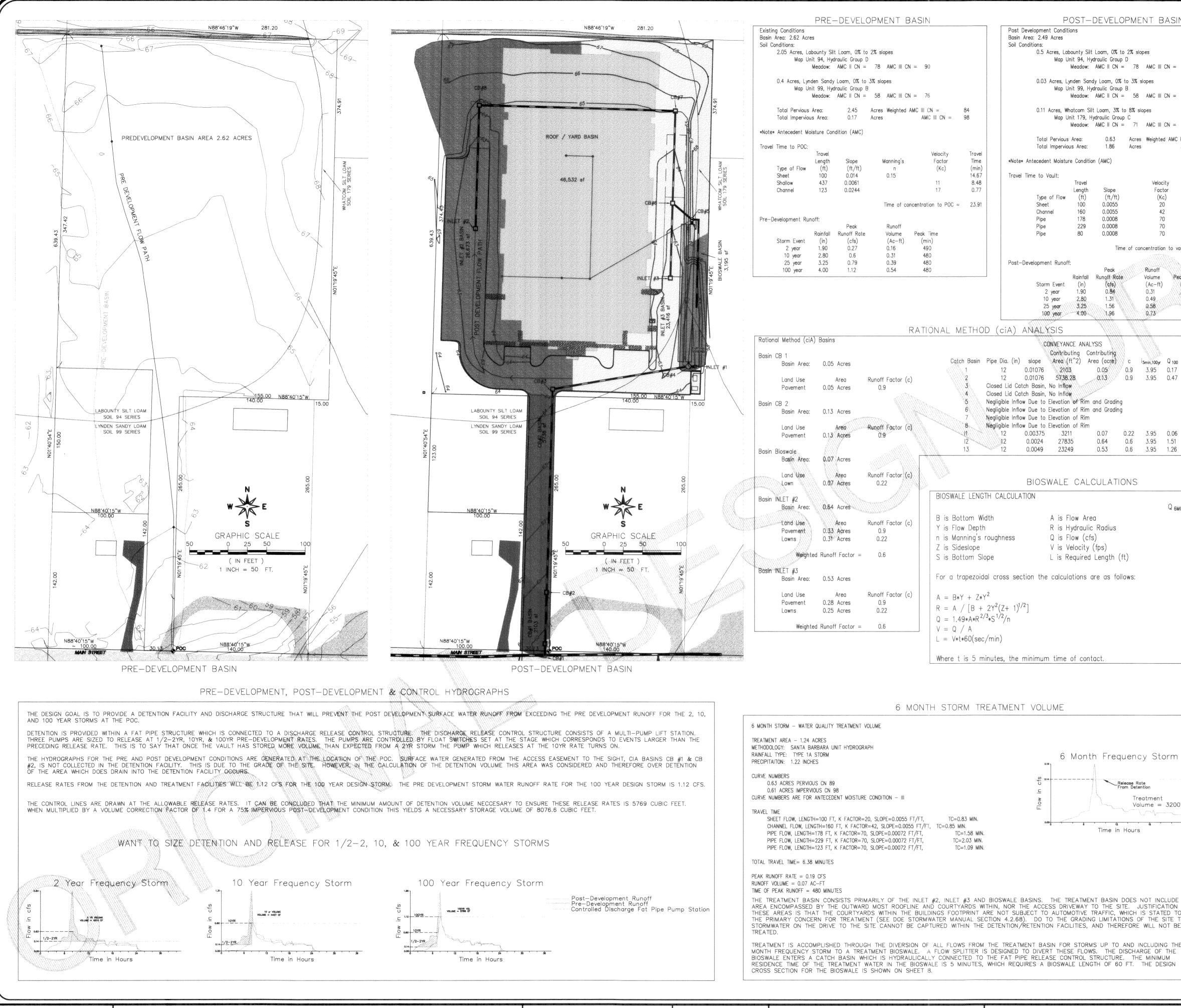


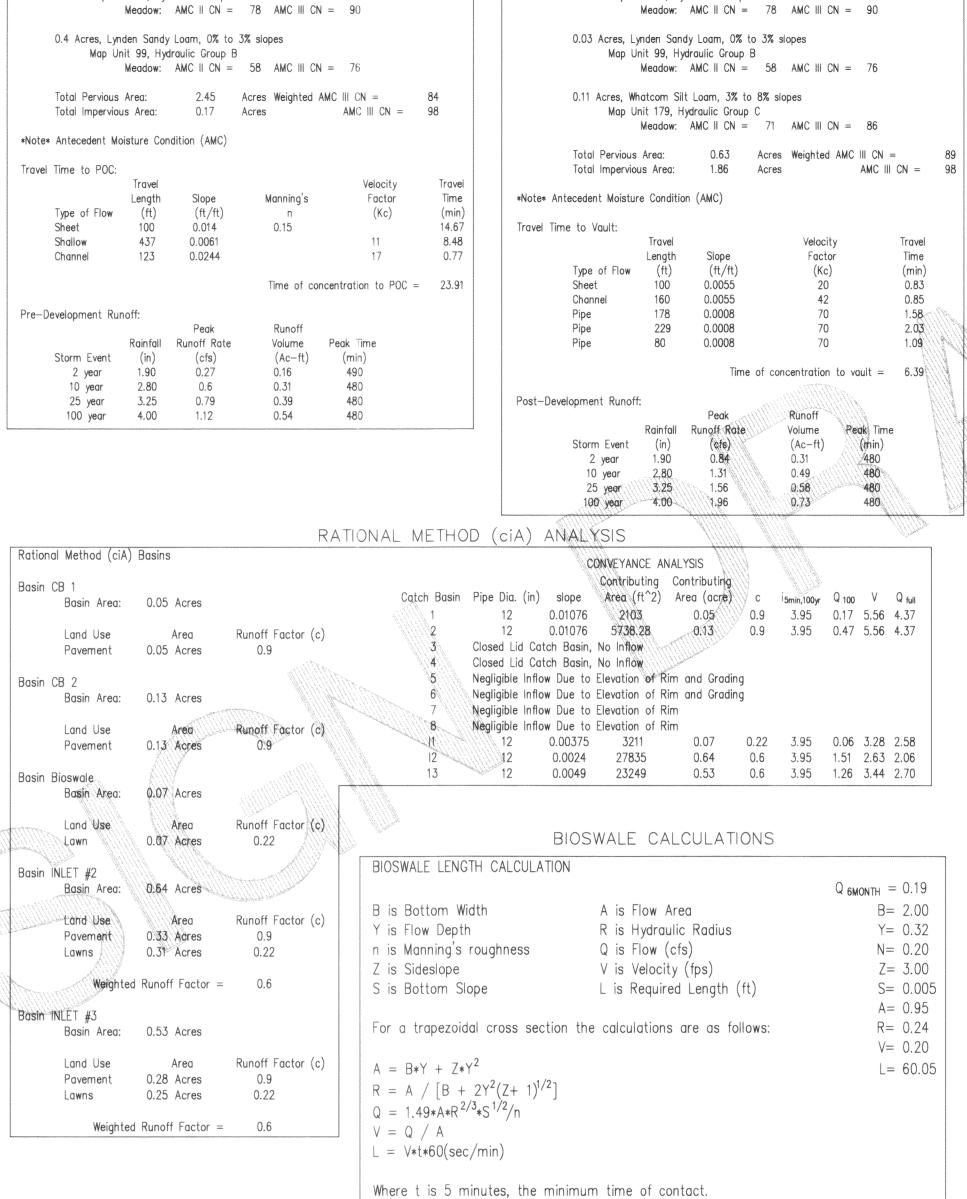
FERNDALE PLACE AS-BULT PUMP SPECIFICATION SHEET

DEPARTMENT	OF	PUBLIC	WORKS
FERNDALE, WASHINGTON	AF	PRO	VED
This plan has been to be in conforman	reviev	wed and four th departmen	nd nt

TY ENGINEER....

10A





POST-DEVELOPMENT BASIN

0.5 Acres, Labounty Silt Loam, 0% to 2% slopes

Map Unit 94, Hydraulic Group D

Post Development Conditions

Basin Area: 2.49 Acres

Soil Conditions:

PRE-DEVELOPMENT BASIN

Map Unit 94, Hydraulic Group D

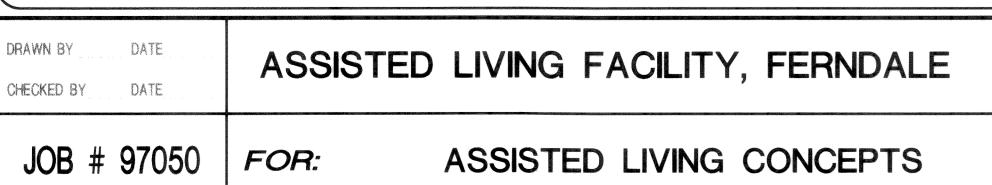
6 MONTH STORM TREATMENT VOLUME 6 MONTH STORM - WATER QUALITY TREATMENT VOLUME TREATMENT AREA - 1.24 ACRES METHODOLOGY: SANTA BARBARA UNIT HYDROGRAPH RAINFALL TYPE: TYPE 1A STORM 6 Month Frequency Storm PRECIPITAITON: 1.22 INCHES 0.63 ACRES PERVIOUS CN 89 0.61 ACRES IMPERVIOUS CN 98 CURVE NUMBERS ARE FOR ANTECEDENT MOISTURE CONDITION - III Treatment Volume = 3200 cfSHEET FLOW, LENGTH=100 FT, K FACTOR=20, SLOPE=0.0055 FT/FT, CHANNEL FLOW, LENGTH=160 FT, K FACTOR=42, SLOPE=0.0055 FT/FT, TC=0.85 MIN. Time in Hours PIPE FLOW, LENGTH=178 FT, K FACTOR=70, SLOPE=0.00072 FT/FT, TC=1.58 MIN. PIPE FLOW, LENGTH=229 FT, K FACTOR=70, SLOPE=0.00072 FT/FT, TC=2.03 MIN. PIPE FLOW, LENGTH=123 FT, K FACTOR=70, SLOPE=0.00072 FT/FT, TC=1.09 MIN. TOTAL TRAVEL TIME= 6.38 MINUTES PEAK RUNOFF RATE = 0.19 CFS RUNOFF VOLUME = 0.07 AC-FT TIME OF PEAK RUNOFF = 480 MINUTES THE TREATMENT BASIN CONSISTS PRIMARILY OF THE INLET #2, INLET #3 AND BIOSWALE BASINS. THE TREATMENT BASIN DOES NOT INCLUDE THE AREA ENCOMPASSED BY THE OUTWARD MOST ROOFLINE AND COURTYARDS WITHIN, NOR THE ACCESS DRIVEWAY TO THE SITE. JUSTIFICATION FOR THESE AREAS IS THAT THE COURTYARDS WITHIN THE BUILDINGS FOOTPRINT ARE NOT SUBJECT TO AUTOMOTIVE TRAFFIC, WHICH IS STATED TO BE THE PRIMARY CONCERN FOR TREATMENT (SEE DOE STORMWATER MANUAL SECTION 4.2.68). DO TO THE GRADING LIMITATIONS OF THE SITE THE STORMWATER ON THE DRIVE TO THE SITE CANNOT BE CAPTURED WITHIN THE DETENTION RETENTION FACILITIES, AND THEREFORE WILL NOT BE TREATMENT IS ACCOMPLISHED THROUGH THE DIVERSION OF ALL FLOWS FROM THE TREATMENT BASIN FOR STORMS UP TO AND INCLUDING THE 6

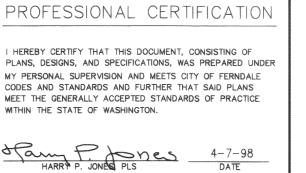
HYE	DROLOGY/HYDRAULI	CS	97050
Storm Event 6 Month Post Developm Treatment Basin Area 2 Year 10 Year 100Year	Vault Level Pool Summary. Pre—Dev. Post—Dev. Peak (cfs) (cfs) Stage lent NA 0.19 53.78 0.27 0.84 56.17 0.60 1.31 56.49 1.12 1.96 59.15	Storage Controled D (cf) (cf) (cf) (cf) (53 0.1 4014 0.1 4427 0.6 5769 1.1	50% of PRE 2yr 50% of PRE 2yr 500
Given: Q (cfs) from ciA & co L (ft) length of reach Diameter (ft) of pipe Invert Elevation (ft) of g = 32.2 (ft/s) n for PVC = 0.011 K _e = 0.5 K _b = 1 for 90° bend		arian Sar Cural Colon Sar Nasa Sarka S	
Calculate: Hydraulic Radius = Did Area = pr² (ft²) V = Q/A (ft/s) Velocity Head = V²/2 Tailwater EL. (ft) eithe Friction Loss (ft) = L(Entr. Head Loss (ft) = Exit Head Loss (ft) = Bend Head Loss (ft) =	g (ft) er given or equal to Headwater reach below (nV) ² /(2.22R) ^{1.33} = K _e * Vel. Head 1.0 * Vel. Head		
Headwater EL. = T.W.E Analysis per King Cour 100 YEAR FLOW CONVEYANCE Pipe Material - PVC Ke= 0.50 Kb= 1	t) = Vel. Head $_1$ * $[(Q_3/Q_1)/(1.18+0.63(Q_3))]$ (L. + HL $_f$ + HL $_{ent}$ + HL $_{exit}$ + HL $_{bend}$ + HL $_{junc}$. Inty Surface Water Manual Dated 1995	·/ Q ₁)]	
Headwater EL. = T.W.E Analysis per King Cour 100 YEAR FLOW CONVEYANCE Pipe Material— PVC Ke= 0.50	L. + HL _f + HL _{ent} + HL _{exit} + HL _{bend} + HL _{junc} . The surface Water Manual Dated 1995 To vact Vel. Head Length IE Down— IE Up— Tailwater Frict If the stream Stream Elevation 19 1.60 0.04 77.87 59.07 59.38 61.40 0.9 1.92 0.06 128.36 59.78 60.08 61.80 0.9 1.92 0.06 203.83 59.3 59.78 61.40 0.9 1.92 0.06 95.9 59.07 59.3 61.10 0.9 1.92 0.06 95.9 59.07 59.3 61.10 0.9 3.53 0.19 26.37 59 59.07 60.51 0.9 3.53 0.19 26.37 59 59.07 60.51 0.9 3.28 0.17 5 58.19 59 59.15 0.9 1.43 0.03 143.05 58.91 58.91 57.25 0.9 1.43 0.03 143.05 58.91 58.91 57.02 0.9 1.43 0.03 211.5 56.63 58.91 57.02	E. Loss Entr. Head Exit Head Bend Fit Loss ft	s ft Loss ft El ft El ft 04 0.03 61.59 62.38 06 0 62.17 62.08 06 0 61.80 64.25 06 0.03 61.40 65.05 19 0 61.10 63.32
Headwater EL. = T.W.E Analysis per King Cour 100 YEAR FLOW CONVEYANCE Pipe Material - PVC Ke= 0.50 Kb= 1 Orifice Coef.= 0.98 H-W Coef= 110 Man. n= 0.011 Q act Dia. Ao REACH cfs in sft 13-6 1.26 12 0.79 12-8(concrete) 1.51 12 0.79 8-7 1.51 12 0.79 7-6 1.51 12 0.79 6-5 2.77 12 0.79 5-FAT PIPE 2.58 12 0.79 4-3(pressure) 1.12 12 0.79 3-2 1.12 12 0.79	L. + HL _f + HL _{ent} + HL _{exit} + HL _{bend} + HL _{junc} . Ty Surface Water Manual Dated 1995 Voct Vel. Head Length E Down- E Up- Tailwater Frict Fit/s ft ft Stream Stream Elevation Fit/s ft ft Stream Stream Elevation Fit/s ft ft Stream Stream Fit/s ft Stream Stream Fit/s ft Stream Stream Fit/s ft Fit/s F	E. Loss Entr. Head Exit Head Bend Fit Loss ft	s ft Loss ft El ft El ft 04 0.03 61.59 62.38 06 0 62.17 62.08 06 0 61.80 64.25 06 0.03 61.40 65.05 19 0 61.10 63.32 0 59.42 67.83 0 57.43 62.41 03 0 57.25 63.87
Headwater EL. = T.W.E Analysis per King Cour 100 YEAR FLOW CONVEYANCE Pipe Material - PVC Ke= 0.50 Kb= 1 Orifice Coef.= 0.98 H-W Coef= 110 Man. n= 0.011 Q oct Dia. Ao REACH cfs in sff 13-6 1.26 12 0.79 8-7 1.51 12 0.79 8-7 1.51 12 0.79 6-5 2.77 12 0.79 5-FAT PIPE 2.58 12 0.79 4-3(pressure) 1.12 12 0.79 3-2 1.12 12 0.79 3-2 1.12 12 0.79 AREACH cfs in sff FS-SWALE 0.19 6 0.20	L. + HL _f + HL _{ent} + HL _{exit} + HL _{bend} + HL _{junc} . Ty Surface Water Manual Dated 1995 Voct Vel. Head Length E Down- E Up- Tailwater Frict Fit/s ft ft Stream Stream Elevation Fit/s ft ft Stream Stream Elevation Fit/s ft ft Stream Stream Fit/s ft Stream Stream Fit/s ft Stream Stream Fit/s ft Fit/s F	E. Loss Entr. Head Exit Head Bend Head Fit Loss ft Los	s ft Loss ft El ft El ft 04 0.03 61.59 62.38 61.59 62.38 61.59 62.38 61.60 6 0 61.80 64.25 61.40 65.05 61.40 65.05 61.40 63.32 61.40 67.83 67.83 67.83 67.83 67.83 67.83 67.83 67.83 67.83 67.83 67.83 67.83 67.83 67.83 67.83 67.83 67.83
Headwater EL. = T.W.E Analysis per King Cour 100 YEAR FLOW CONVEYANCE Pipe Material- PVC Ke= 0.50 Kb= 1 Orifice Coef.= 0.98 H-W Coef= 110 Man. n= 0.011 Q act Dia. Ao REACH cfs in sft 13-6 1.26 12 0.79 8-7 1.51 12 0.79 8-7 1.51 12 0.79 6-5 2.77 12 0.79 5-FAT PIPE 2.58 12 0.79 4-3(pressure) 1.12 12 0.79 4-3(pressure) 1.12 12 0.79 2-1 1.12 12 0.79 REACH cfs in sft FS-SWALE 0.19 6 0.20	L. + HL _f + HL _{ent} + HL _{exit} + HL _{bend} + HL _{junc} . Aty Surface Water Manual Dated 1995 V _{act} Vel. Head Length E Down- E Up- Tailwater Frict t ft/s ft ft Stream Stream Elevation 9 1.60 0.04 77.87 59.07 59.38 61.40 0.00 9 1.92 0.06 128.36 59.78 60.08 61.80 0.00 9 1.92 0.06 95.9 59.07 59.3 61.40 0.00 9 1.92 0.06 95.9 59.07 59.3 61.10 0.00 9 3.53 0.19 26.37 59 59.07 60.51 0.00 9 3.28 0.17 5 58.19 59 59.15 0.00 9 1.43 0.03 143.05 58.91 58.91 57.25 0.00 9 1.43 0.03 211.5 56.63 58.91 57.02 0.00 9 1.43 0.03 211.5 56.63 58.91 57.02 0.00 9 1.43 0.03 211.5 56.63 58.91 57.02 0.00 9 1.43 0.03 211.5 56.63 58.91 57.02 0.00 9 1.45 0.07 98.15 0.10 59.5 59.92 59.94 0.00 Vact Length Hf(2-3) E DOWN E UP- WL U	E. Loss Entr. Head Exit Head Bend Reft Loss ft	s ft Loss ft El ft El ft 04 0.03 61.59 62.38 06 0 62.17 62.08 06 0 61.80 64.25 06 0.03 61.40 65.05 09 0 61.10 63.32 0 59.42 67.83 03 0 57.43 62.41 03 0 57.25 63.87 0 57.02 60.65
Headwater EL. = T.W.E Analysis per King Cour 100 YEAR FLOW CONVEYANCE Pipe Material - PVC Ke= 0.50 Kb= 1 Orifice Coef.= 0.98 H-W Coef= 110 Man. n= 0.011 Q act Dia. Ao REACH cfs in sft 13-6 1.26 12 0.79 12-8(concrete) 1.51 12 0.79 8-7 1.51 12 0.79 7-6 1.51 12 0.79 6-5 2.77 12 0.79 5-FAT PIPE 2.58 12 0.79 4-3(pressure) 1.12 12 0.79 2-1 1.12 12 0.79 REACH cfs in sft FS-SWALE 0.19 6 0.20	LEGEND - S LOT LINES SITE	E. Loss Entr. Head Exit Head Bend Head Loss ft	s ft Loss ft El ft El ft 04 0.03 61.59 62.38 06 0 62.17 62.08 06 0 61.80 64.25 06 0.03 61.40 65.05 09 0 61.10 63.32 00 59.42 67.83 03 0 57.43 62.41 03 0 57.25 63.87 00 57.02 60.65
Headwater EL. = T.W.E Analysis per King Cour 100 YEAR FLOW CONVEYANCE Pipe Material - PVC Ke=	T.L. + HL _f + HL _{ent} + HL _{exit} + HL _{bend} + HL _{junc} . At y Surface Water Manual Dated 1995 Total Surface Water Manual Date Manual Processing No. 10	E. Loss Entr. Head Exit Head Bend Head Report Loss ft	s ft Loss ft El ft El ft 04 0.03 61.59 62.38 06 0 62.17 62.08 06 0 61.80 64.25 06 0.03 61.40 65.05 09 0 61.10 63.32 00 59.42 67.83 03 0 57.43 62.41 03 0 57.25 63.87 00 57.02 60.65
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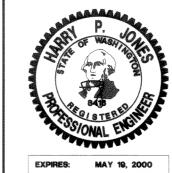
SOIL BOUNDARY

EXISTING FENCE

PRE-DEVELOPMENT BASIN BOUNDARY









FERNDALE PLACE HYDROLOGY / HYDRAULICS

