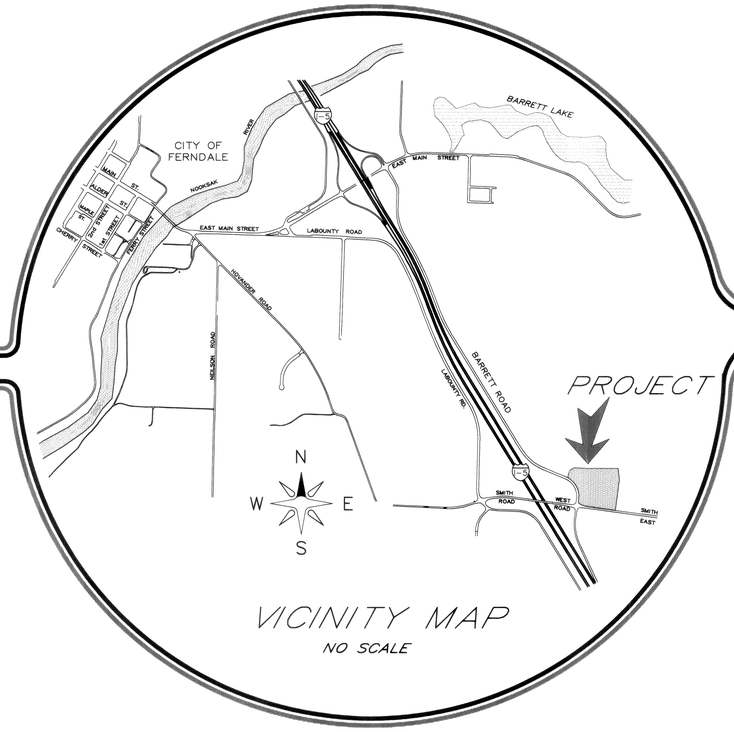
SHIELDS ESTATES



VICINITY MAP
NO SCALE

AS-BUILTS DRAWINGS

DESIGN & CONSTRUCTION DRAWINGS

DRAWN BY DATE
CHECKED BY DATE

JOB # 97015

SHIELDS ESTATES

FOR: TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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 — 1/15/98 DATE

HARRY P. JONES — STATE OF WASHINGTON — 19416 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES: MAY 19, 1998

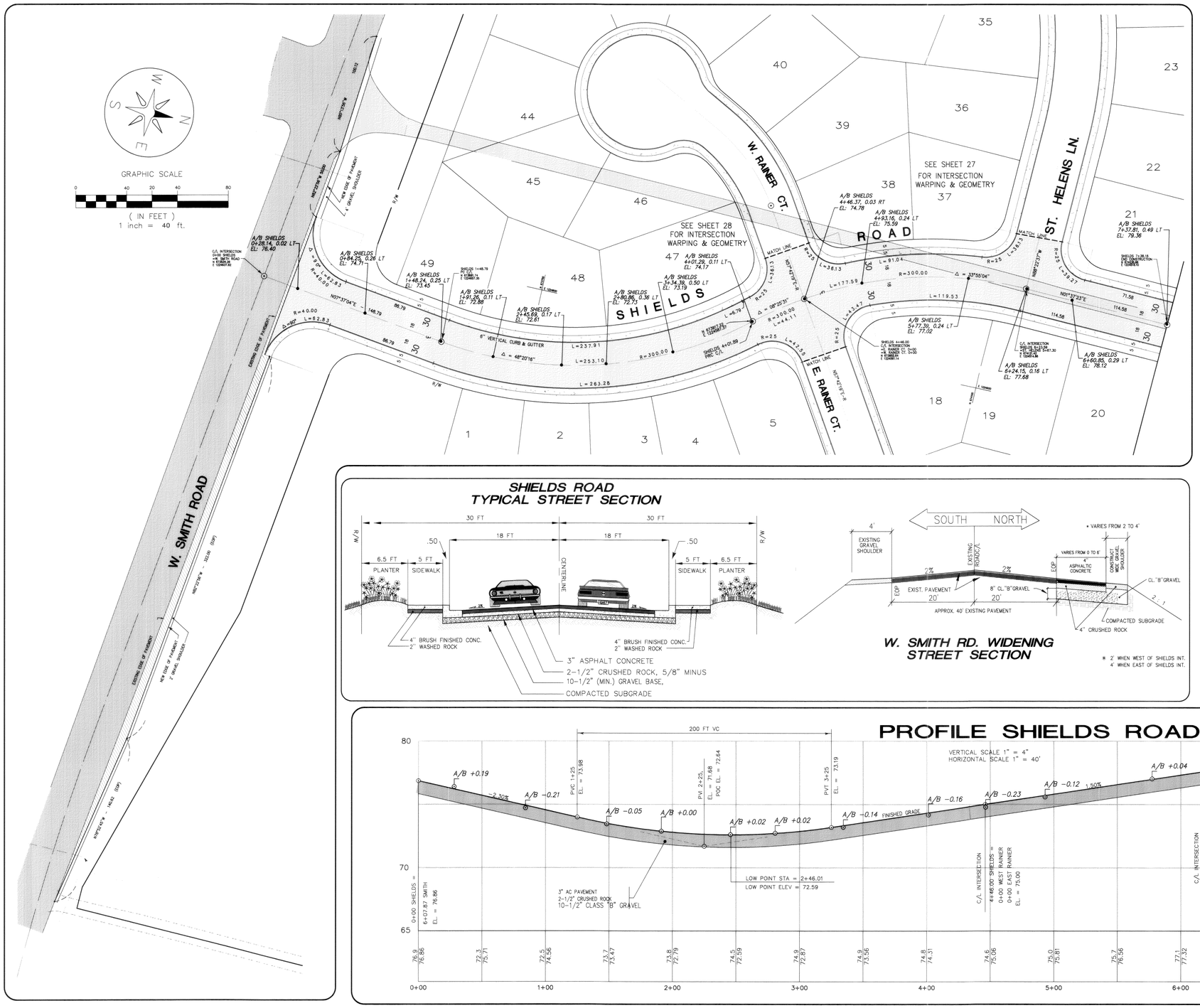
JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (206) 733-8888

SHIELDS ESTATES
COVER SHEET & VICINITY MAP

DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER John F. Eley DATE 7-7-97

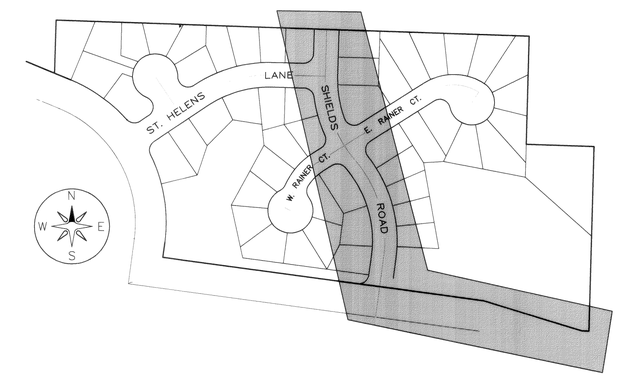
SHEET 1 OF 35

A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28
TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.



STREET PLAN - SHIELDS ROAD

JOB NO. 97015



NO	DATE	BY	NOTE
1.	6-17-97	A.K.	REVISE PER AGENCY REVIEW
2.			
3.			
4.			
5.			

REVISIONS

CONTROL DATUM

HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: CASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E, W.M.
Y: 673,433.53
X: 1,226,474.60

MERIDIAN: SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 28, N88°22'49"W

VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050
NORTH OF SMITH ROAD ON THE FRONTAGE ROAD EAST OF I-5
ELEVATION = 81.03

DESIGN CRITERIA

1. PROVIDE ACCESS TO PROPOSED SHIELDS ESTATES
2. PROVIDE INTERNAL CIRCULATION TO THE PROPOSED SHIELDS ESTATES
3. PROVIDE RESIDENTIAL ACCESS

FUNCTIONAL CLASSIFICATION:	LOCAL ACCESS
PROPOSED ACCESS:	W. SMITH RD. / BARRETT RD.
AVERAGE WEEKDAY TRAFFIC:	1090 VPD
DESIGN SPEED:	25 MPH
MIN. STOPPING SIGHT DISTANCE:	150 FT
MIN. VERT. CURVE PROVIDED:	200 FT
MAX. STREET GRADE:	2.3 %
MIN. STREET GRADE:	1.5 %
MIN. LANE WIDTHS:	18 FT
MIN. C/L RADIUS CURVES:	300 FEET
MIN. RADIUS CURB RETURNS:	25 FT
SPLIT HORIZONTAL ALIGNMENT:	NO
SPLIT VERTICAL ALIGNMENT:	NO
MEDIANS:	NO
RIGHT OF WAY:	60 FT
BIKE LANES:	NO
CURBS:	6" CONC. VERTICAL CURB & GUTTER
SIDEWALKS:	4" x 5 FT (BOTH SIDE)

SEE SHEET 14 (SHIELDS STORM DRAINAGE) FOR ROOF & YARD DETAILS

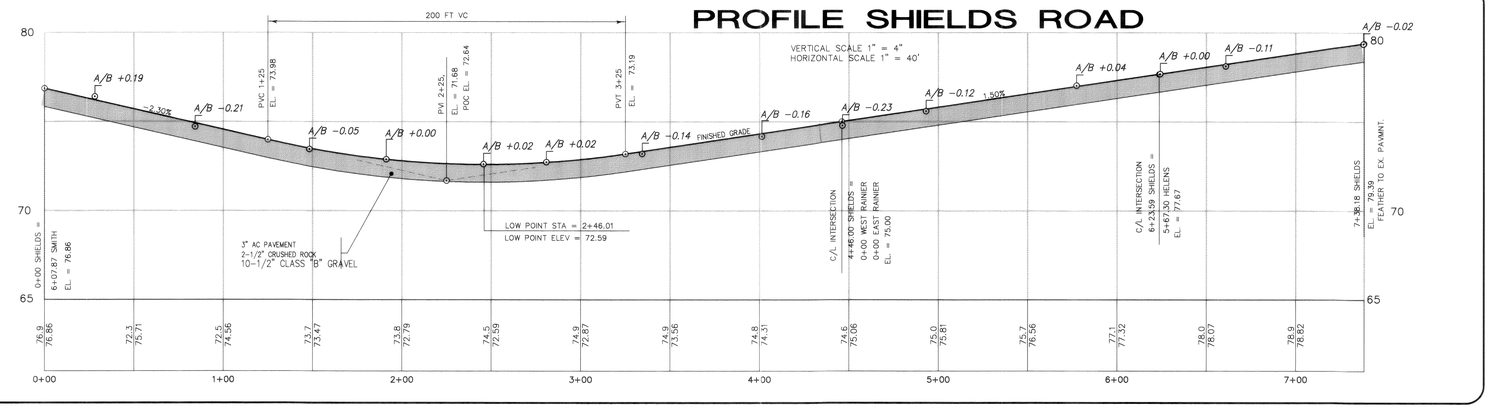
A/B - INDICATES FIELD SURVEY POSITION / AS-BUILT.

SHIELDS ROAD TYPICAL STREET SECTION

W. SMITH RD. WIDENING STREET SECTION

* 2' WHEN WEST OF SHIELDS INT.
4' WHEN EAST OF SHIELDS INT.

PROFILE SHIELDS ROAD



LEGEND

376.0	EXISTING GROUND ELEVATION
373.70	FINISHED GRADE ELEVATION
▲	TOP OF ROCK ELEV AT TEST PIT
YYY XXX	ABBREVIATED LAMBERT GRID COORDINATES
46	LOT NUMBER
	CONC. CURB & GUTTER
	PROPOSED GRAVEL SHOULDER
	PROPOSED PAVEMENT
	PROPOSED ROAD WIDENING
	EXISTING PAVEMENT (TO BE REMOVED)
	EXISTING EOP
	CENTERLINE
	LOT LINES
R/W	PROPERTY/ROW LINE
	LIMITED ACCESS
	STRUCTURAL SECTION
	EXISTING GROUND
◻	CATCH BASIN
■	J-BOX
—	4"- 8" ROOF & YARD DRAIN
○	CLEAN-OUT

DRAWN BY_____ DATE ____
DRAWN BY_____ DATE ____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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

HARRY P. JONES — STATE OF WASHINGTON — 16416 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

AS-BUILT
SHIELDS ESTATES
SHIELDS ROAD: STREET PLAN & PROFILE
WEST SMITH ROAD: WIDENING PLAN

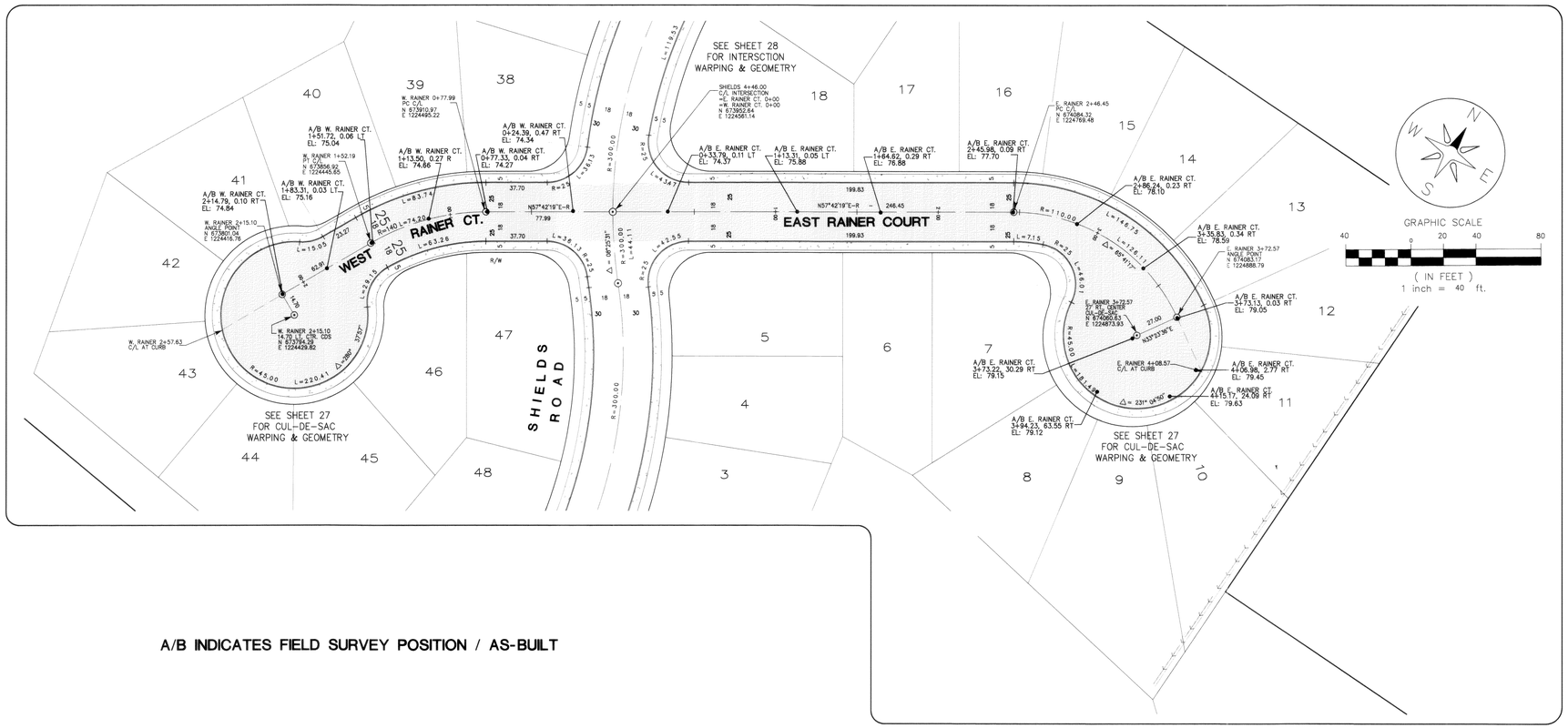
DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

SHEET 9 OF 35

00226.002 2-16-00 KR

E:\97015\AB-STRT1 Wed Apr 08 17:47:00 1998 DALE BUTS

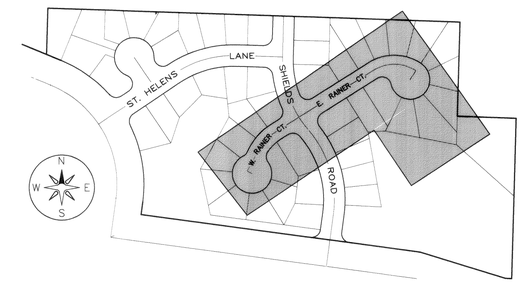
A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28 TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.



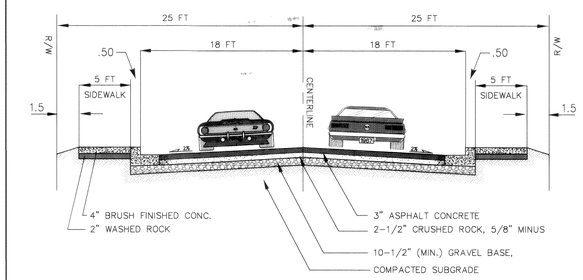
A/B INDICATES FIELD SURVEY POSITION / AS-BUILT

STREET PLAN - E/W RAINER CT.

JOB NO. 97015



EAST & WEST RAINER COURT TYPICAL STREET SECTION



REVISIONS

NO	DATE	BY	NOTE
1.			
2.			
3.			
4.			
5.			

CONTROL DATUM

HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: CASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E, W.M.
Y: 673,433.53
X: 1,226,474.60

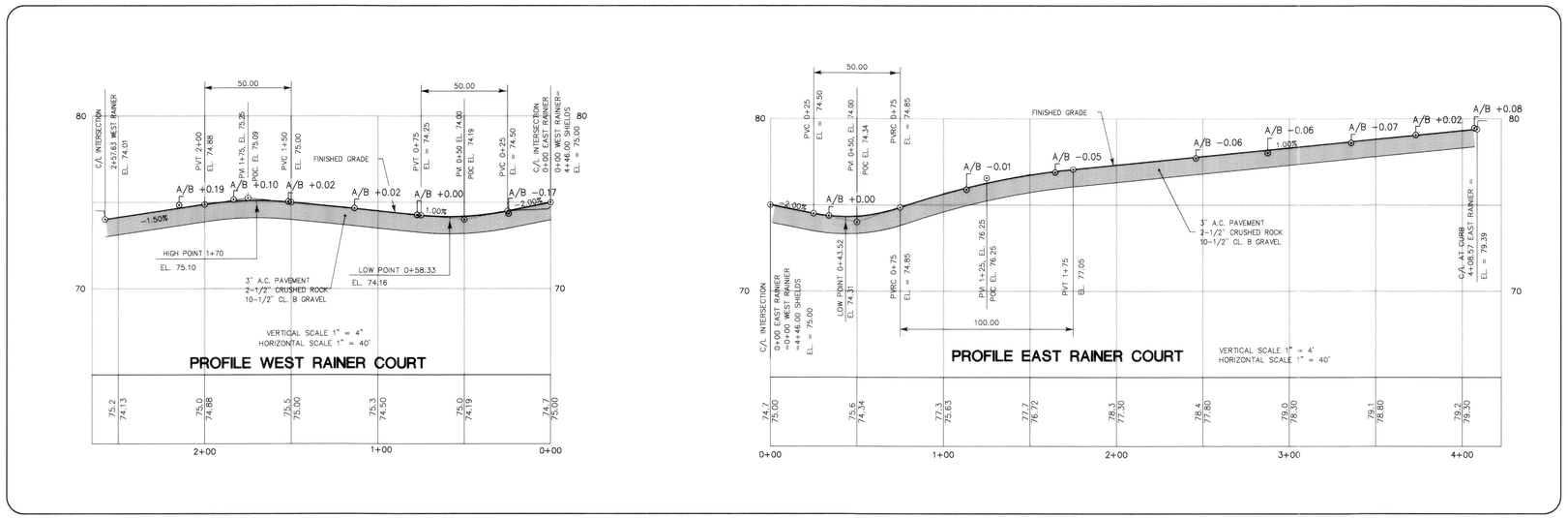
MERIDIAN: SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 28, N88°22'49"W

VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050 NORTH OF SMITH ROAD ON THE FRONTAGE ROAD EAST OF I-5 ELEVATION = 81.03

DESIGN CRITERIA

FUNCTIONAL CLASSIFICATION:	LOCAL ACCESS
PROPOSED ACCESS:	BARRET/SMITH ROAD
AVERAGE WEEKDAY TRAFFIC:	191 VPD
DESIGN SPEED:	25 MPH
MIN. STOPPING SIGHT DISTANCE:	150 FT
MIN. VERT. CURVE PROVIDED:	50 FT
MAX. STREET GRADE:	2.0 %
MIN. STREET GRADE:	1.0 %
MIN. LANE WIDTHS:	18 FT

MIN. C/L RADIUS CURVES:	110 FEET
MIN. RADIUS CURB RETURNS:	25 FT
SPLIT HORIZONTAL ALIGNMENT:	NO
SPLIT VERTICAL ALIGNMENT:	NO
MEDIANS:	NO
RIGHT OF WAY:	50 FT
BIKE LANES:	NO
CURBS:	CONC. VERTICAL CURB & GUTTER
SIDEWALKS:	4" x 5 FT (BOTH SIDE)



SEE SHEET 13 FOR STREET CONSTRUCTION DETAILS

LEGEND

R/W	PROPERTY/ROW LINE	376.0	EXISTING GROUND ELEVATION
	LIMITED ACCESS	373.70	FINISHED GRADE ELEVATION
	STRUCTURAL SECTION		TOP OF ROCK ELEV AT TEST PIT
	ESTIMATED ROCK	XXX	ABBREVIATED LAMBERT GRID COORDINATES
	EXISTING GROUND	46	LOT NUMBER
	CATCH BASIN		CONC. CURB & GUTTER
	J-BOX		SIDEWALK
	4"- 8" ROOF & YARD DRAIN		PAVEMENT
	CLEAN-OUT		CENTERLINE
			LOT LINES

SEE SHEET 14 (SHIELDS STORM DRAINAGE) FOR ROOF & YARD DETAILS

DRAWN BY_____ DATE _____
DRAWN BY_____ DATE _____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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

HARRY P. JONES — STATE OF WASHINGTON — 14,948 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

AS-BUILT
SHIELDS ESTATES
EAST & WEST RAINER COURT
STREET PLAN & PROFILE

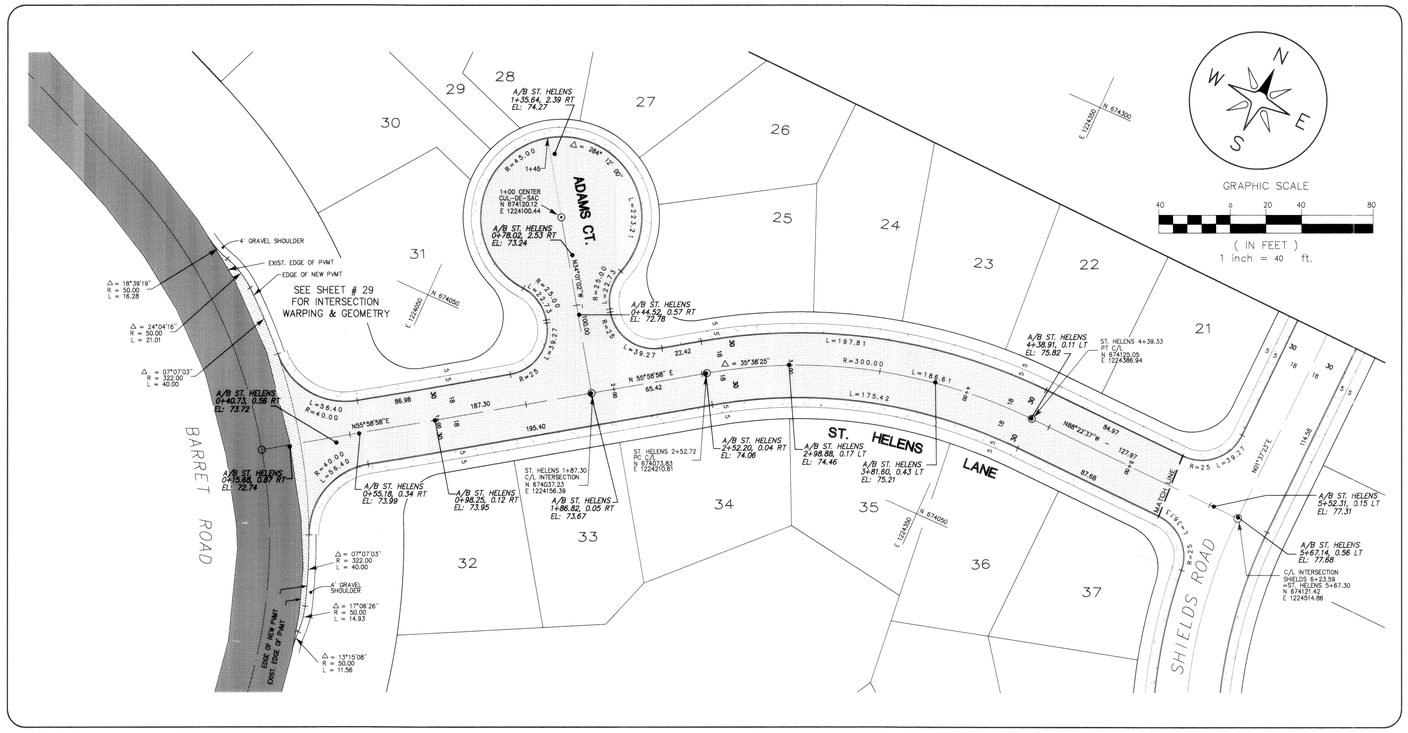
DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

SHEET 10 OF 35

00890.003 2-16-00 KR

E:\97015\AB-STRT3 Wed Apr 08 17:58:38 1998 DALE BUYS

A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28
TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.



REVISIONS

NO	DATE	BY	NOTE
1.	6-18-97	A.K.	REVISE PER AGENCY REVIEW
2.			
3.			
4.			
5.			

CONTROL DATUM

HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: CASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E, W.M.
Y: 673,433.53
X: 1,226,474.50

MERIDIAN: SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 28, N88°22'49"W

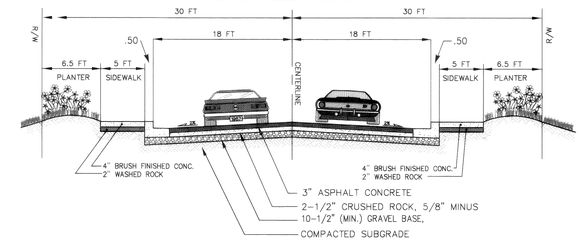
VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050 NORTH OF SMITH ROAD ON THE FRONTAGE ROAD EAST OF I-5 ELEVATION = 81.03

A/B INDICATES FIELD SURVEY POSITION / AS-BUILT.

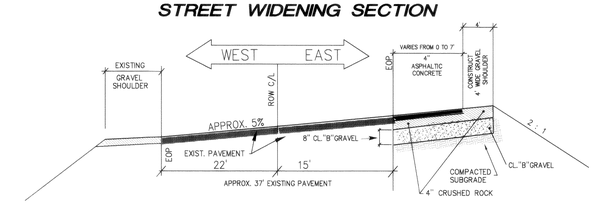
STREET PLAN - ST. HELENS LN.

JOB NO. 97015

SAINT HELENS LANE TYPICAL STREET SECTION



BARRET ROAD STREET WIDENING SECTION



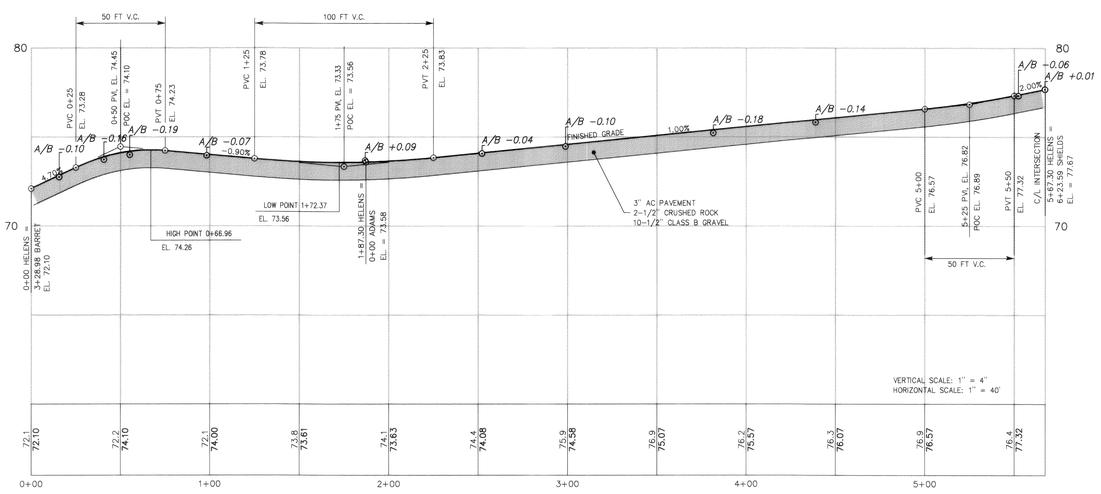
DESIGN CRITERIA

FUNCTIONAL CLASSIFICATION:	LOCAL ACCESS	MIN. C/L RADIUS CURVES:	300 FEET
PROPOSED ACCESS:	BARRET / SMITH ROAD	MIN. RADIUS CURB RETURNS:	25 FT
AVERAGE WEEKDAY TRAFFIC: (HELENS)	1090 VPD	SPLIT HORIZONTAL ALIGNMENT:	NO
DESIGN SPEED:	25 MPH	SPLIT VERTICAL ALIGNMENT:	NO
MIN. STOPPING SIGHT DISTANCE:	150 FT	MEDIANS:	NO
MIN. VERT. CURVE PROVIDED:	50 FT	RIGHT OF WAY:	60 FT
MAX. STREET GRADE:	4.7 %	BIKE LANES:	NO
MIN. STREET GRADE:	0.9 %	CURBS:	6" CONC. VERTICAL CURB & GUTTER
MIN. LANE WIDTHS:	18 FT	SIDEWALKS:	4" x 5 FT (BOTH SIDE)

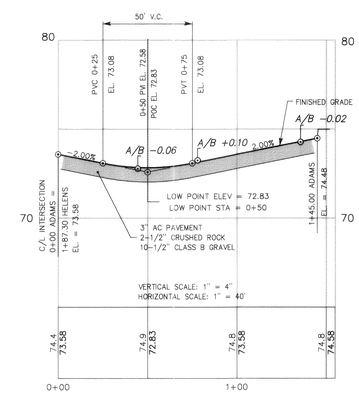
LEGEND

- CENTERLINE
- LOT LINES
- R/W — PROPERTY/ROW LINE
- LIMITED ACCESS
- STRUCTURAL SECTION
- ESTIMATED ROCK
- EXISTING GROUND
- CATCH BASIN
- J-BOX
- 4"- 8" ROOF & YARD DRAIN
- CLEAN-OUT
- 376.0 — EXISTING GROUND ELEVATION
- 373.70 — FINISHED GRADE ELEVATION
- TOP OF ROCK ELEV AT TEST PIT
- YYY XXX — ABBREVIATED LAMBERT GRID COORDINATES
- 46 — LOT NUMBER
- CONC. CURB & GUTTER
- PROPOSED SHOULDER
- PROPOSED PAVEMENT
- PROPOSED ROAD WIDENING

SEE SHEET 14 (SHIELDS STORM DRAINAGE) FOR ROOF & YARD DETAILS



PROFILE ST. HELENS LANE



PROFILE ADAMS CT.

DRAWN BY_____ DATE _____
DRAWN BY_____ DATE _____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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

HARRY P. JONES — STATE OF WASHINGTON — 8416 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

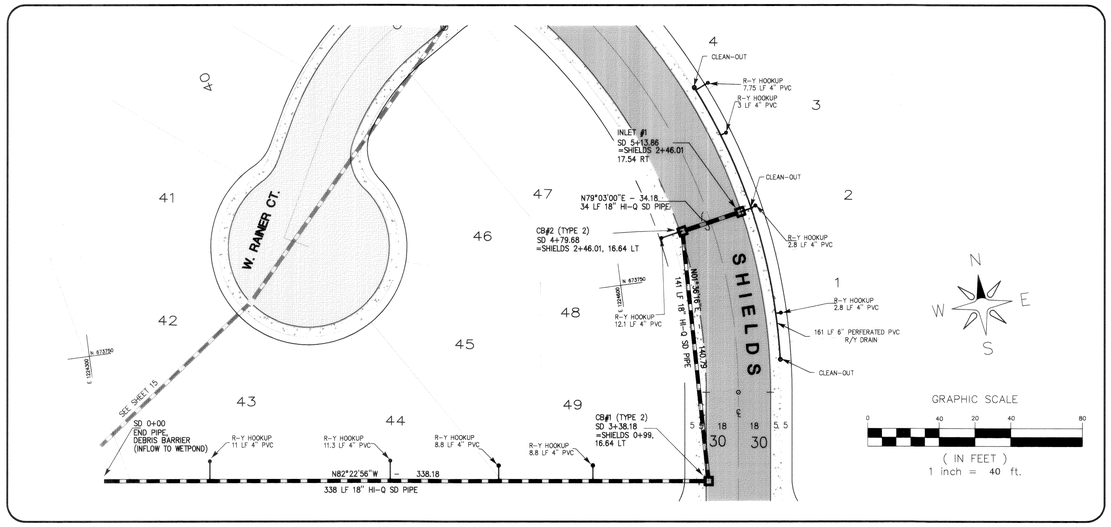
AS-BUILT
SHIELDS ESTATES
ST. HELENS LANE / ADAMS COURT
STREET PLAN & PROFILE
BARRET ROAD WIDENING

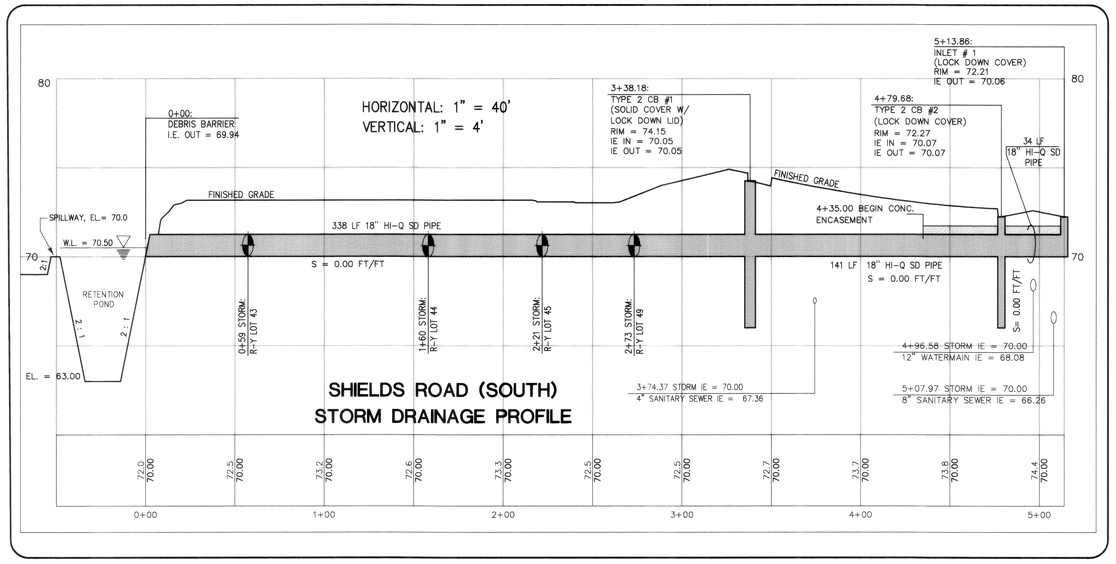
DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

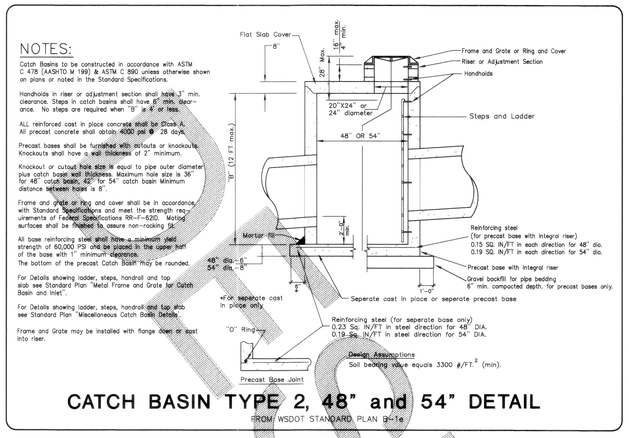
SHEET 11 OF 35

E:\97015\AB-STR12 Wed Apr 08 17:53:16 1998 DALE BUYS

A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28 TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.

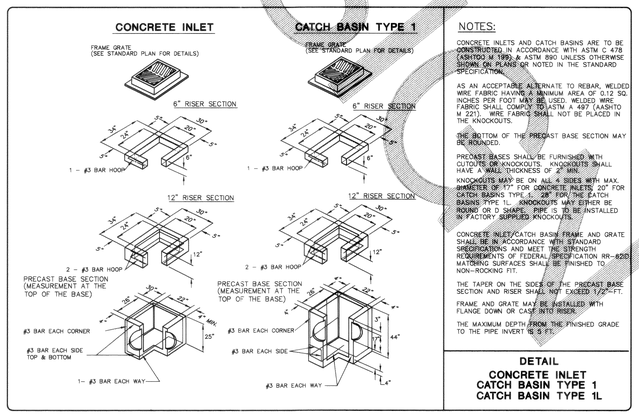




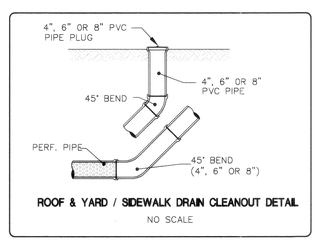


CATCH BASIN TYPE 2, 48" and 54" DETAIL

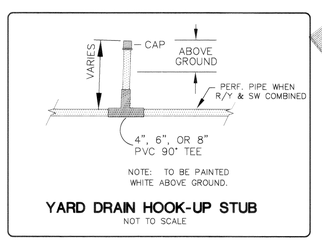
FROM WSDOT STANDARD PLAN B-1e



DETAIL
CONCRETE INLET
CATCH BASIN TYPE 1
CATCH BASIN TYPE 1L

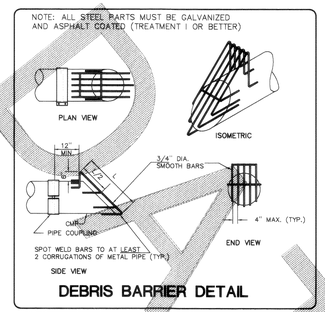


ROOF & YARD / SIDEWALK DRAIN CLEANOUT DETAIL
NO SCALE

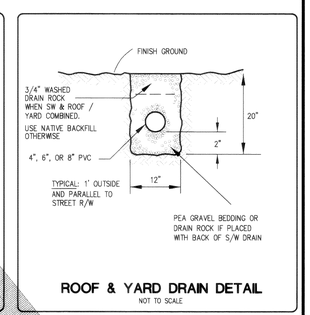


NOTE: TO BE PAINTED WHITE ABOVE GROUND.

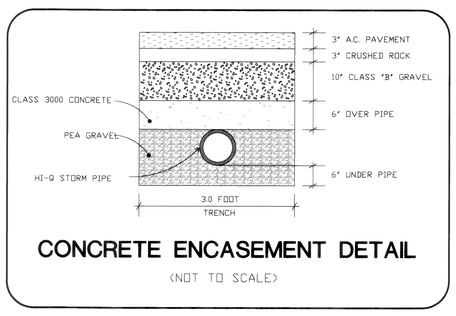
YARD DRAIN HOOK-UP STUB
NOT TO SCALE



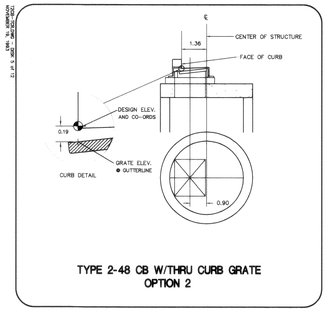
DEBRIS BARRIER DETAIL



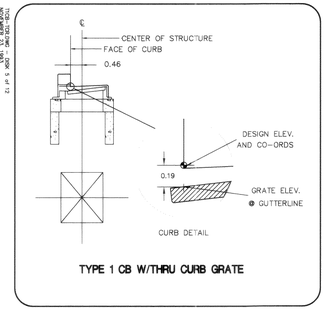
ROOF & YARD DRAIN DETAIL
NOT TO SCALE



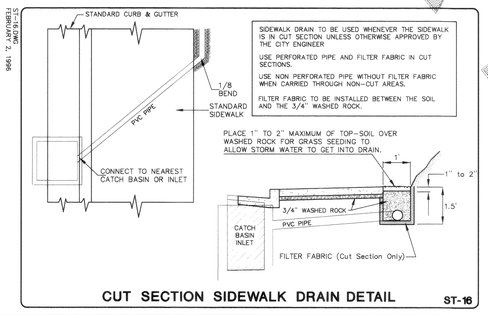
CONCRETE ENCASEMENT DETAIL
(NOT TO SCALE)



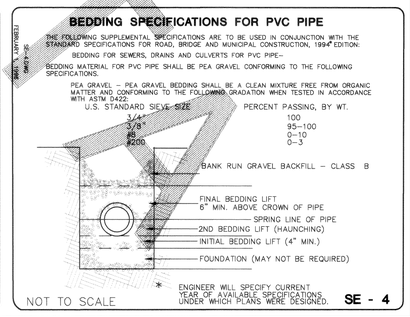
TYPE 2-48 CB W/THRU CURB GRATE
OPTION 2



TYPE 1 CB W/THRU CURB GRATE



CUT SECTION SIDEWALK DRAIN DETAIL ST-16



STORM DRAINAGE PLAN - SHIELDS ROAD

JOB NO. 97015

REVISIONS

NO	DATE	BY	NOTE
1.	6-18-97	A.K.	REVISE PER AGENCY REVIEW
2.			
3.			
4.			
5.			

CONTROL DATUM

HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: CASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E, W.M.
Y: 673,433.53
X: 1,226,474.60

MERIDIAN: SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 28, N88°22'49"W

VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050 NORTH OF SMITH ROAD ON THE FRONTAGE ROAD EAST OF I-5
ELEVATION = 81.03

LEGEND

	CENTERLINE	376.0	EXISTING GROUND ELEVATION
	LOT LINES	373.70	FINISHED GRADE ELEVATION
R/W	PROPERTY/ROW LINE	▲	TOP OF ROCK ELEV AT TEST PIT
	LIMITED ACCESS	XXX	ABBREVIATED LAMBERT GRID COORDINATES
	EXISTING GROUND	46	LOT NUMBER
	CATCH BASIN		VERTICAL CURB & GUTTER
	STORM DRAINAGE PIPE		

00226.005 2-16-06 KR

DRAWN BY_____ DATE ____
DRAWN BY_____ DATE ____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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 — 3-1-98 DATE

HARRY P. JONES — STATE OF WASHINGTON — 8416 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

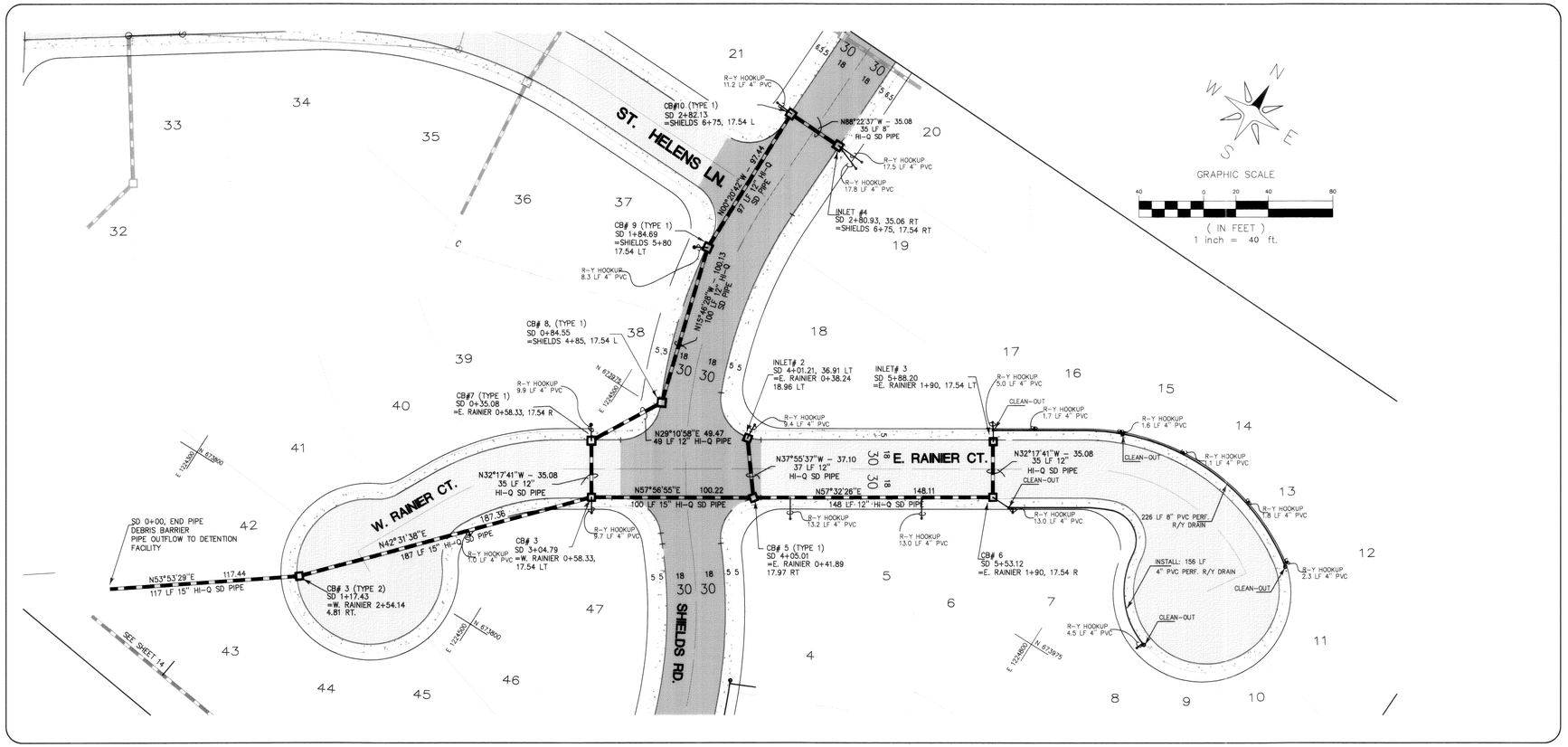
AS-BUILT
SHIELDS ESTATES
STORM PLAN & PROFILE: SHIELDS ROAD (SOUTH)

DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

SHEET 14 OF 35

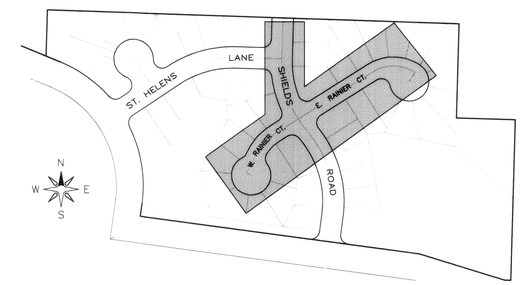
E:\97015\AB-SIM1 Wed Apr 08 17:20:39 1998 DALE BUYS

A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28 TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.



STORM DRAINAGE PLAN

JOB NO. 97015



REVISIONS

NO	DATE	BY	NOTE
1.	6-18-97	A.K.	REVISE PER AGENCY REVIEW
2.			
3.			
4.			
5.			

CONTROL DATUM

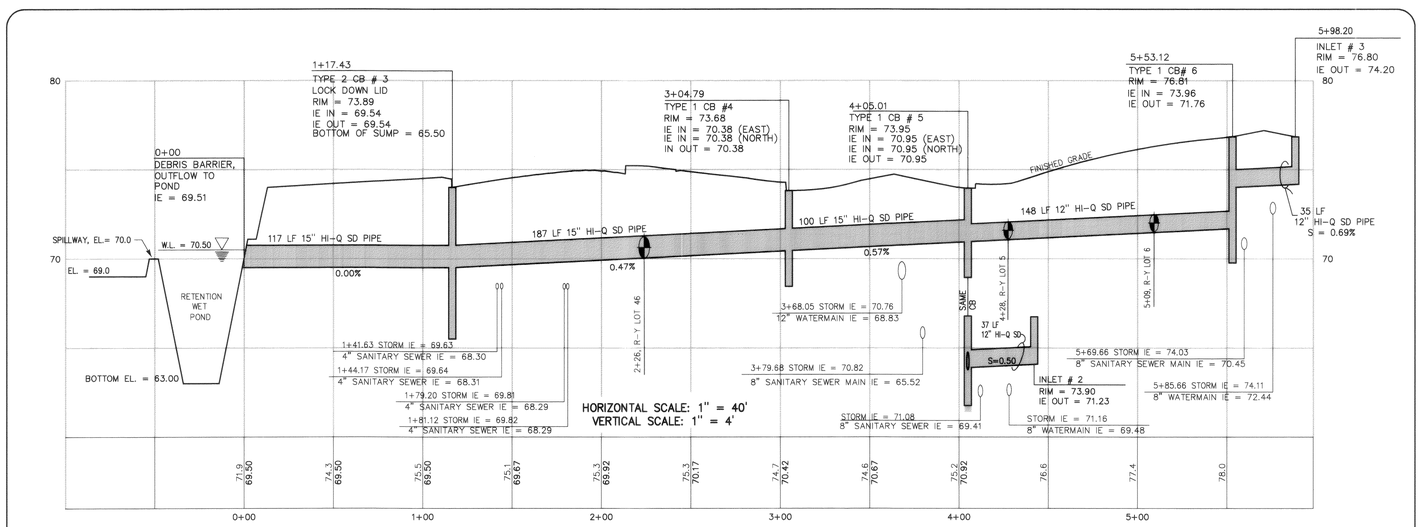
HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: CASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E, W.M.
Y: 673,433.53
X: 1,226,474.60

MERIDIAN: SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 28, N88°22'49"W

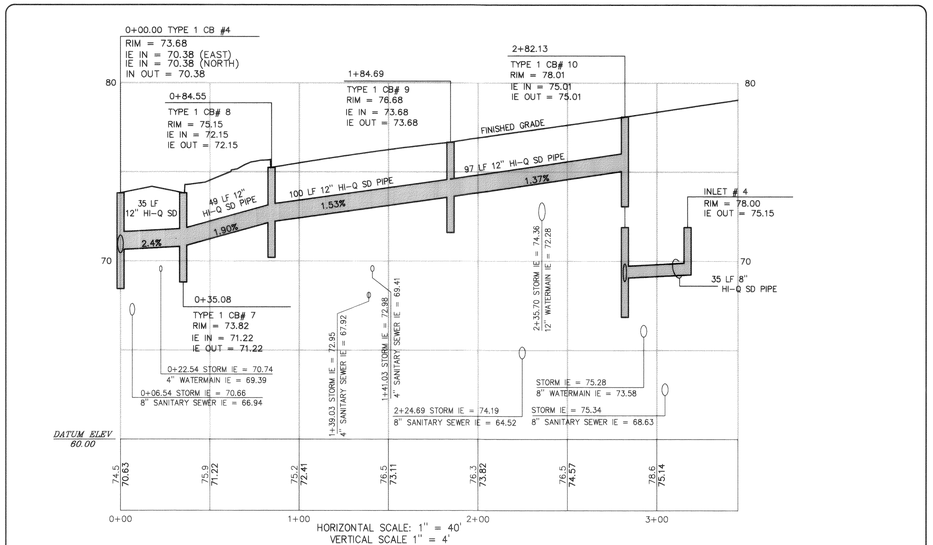
VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050 NORTH OF SMITH ROAD ON THE FRONTAGE ROAD EAST OF I-5
ELEVATION = 81.03

LEGEND

	CENTERLINE	9	ADJACENT PROPERTY LOT NUMBER
	LOT LINES		
	PROPERTY/ROW LINE		
	LIMITED ACCESS	376.0	EXISTING GROUND ELEVATION
	ESTIMATED ROCK	373.70	PIPE INVERT ELEVATION
	EXISTING GROUND	YY XXX	ABBREVIATED LAMBERT GRID COORDINATES
	4" OR 6" ADS ROOF/YARD PIPE		
	CATCH BASIN or INLET		SIDEWALK
	CLEAN-OUT		PAVEMENT
	J-BOX		
	STORM SEWER PIPE	45	LOT NUMBER



E. RAINIER & W. RAINIER STORM DRAINAGE PROFILE



STORM DRAINAGE PROFILE SHIELDS ROAD (NORTH)

DRAWN BY_____ DATE _____

DRAWN BY_____ DATE _____

JOB # 97015

SHIELDS ESTATES

FOR:

TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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

HARRY P. JONES — STATE OF WASHINGTON — 9416 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

AS-BUILT

SHIELDS ESTATES

E. RAINIER & W. RAINIER STORM DRAINAGE PLAN & PROFILE

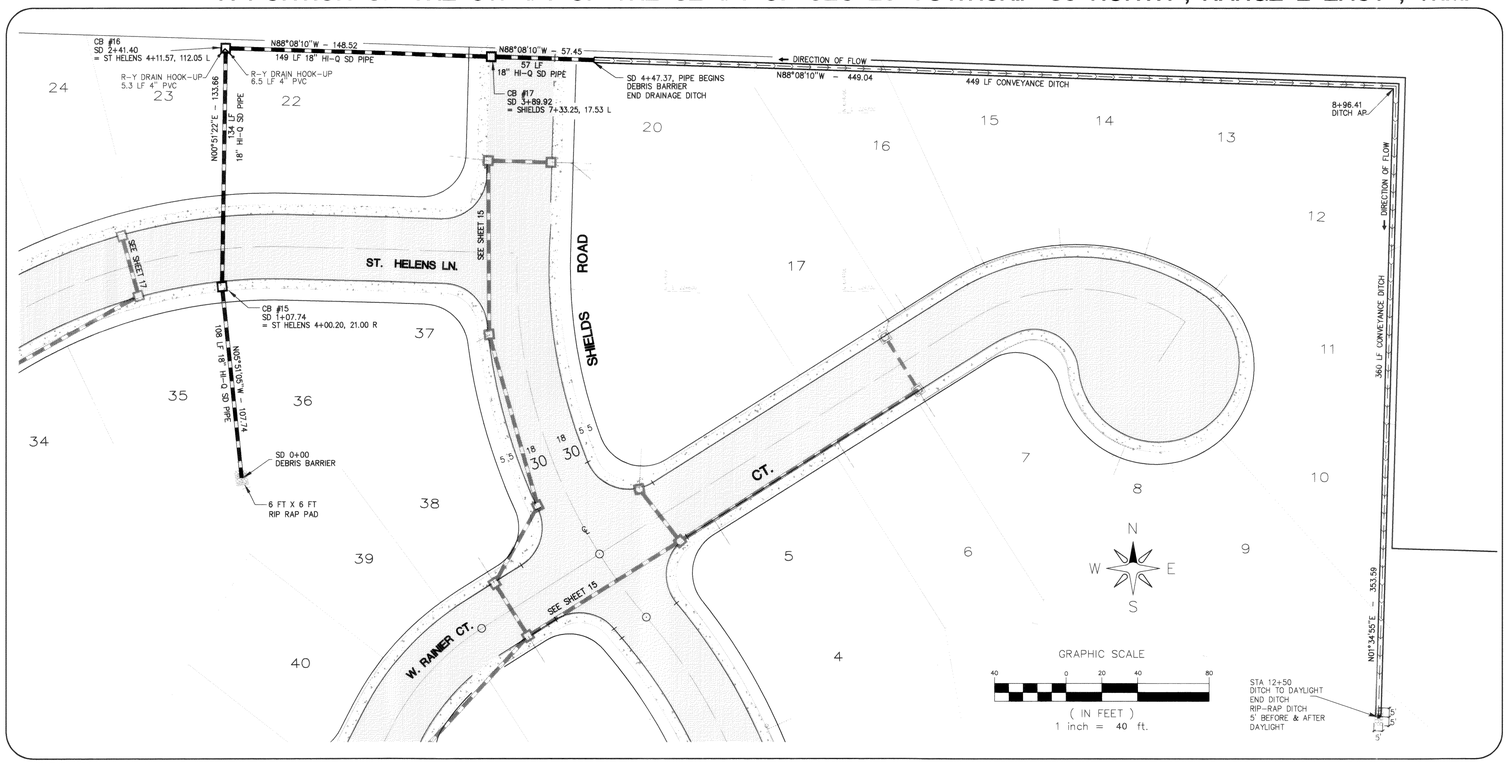
DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

SHEET 15 OF 35

E:\97015\AB-SIN2 Wed Apr 08 17:24:29 1998 DALE BUYS

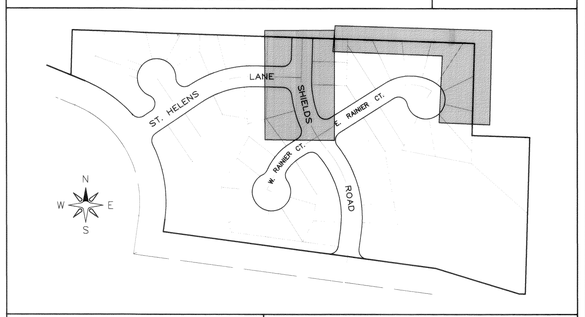
97015.000 2-16-00 KR

A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28 TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.



STORM DRAINAGE PLAN

JOB NO. 97015



REVISIONS

NO	DATE	BY	NOTE
1.			
2.			
3.			
4.			
5.			

CONTROL DATUM

HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: CASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E, W.M.
Y: 673,433.53
X: 1,226,474.60

MERIDIAN: SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 28, N88°22'49"W

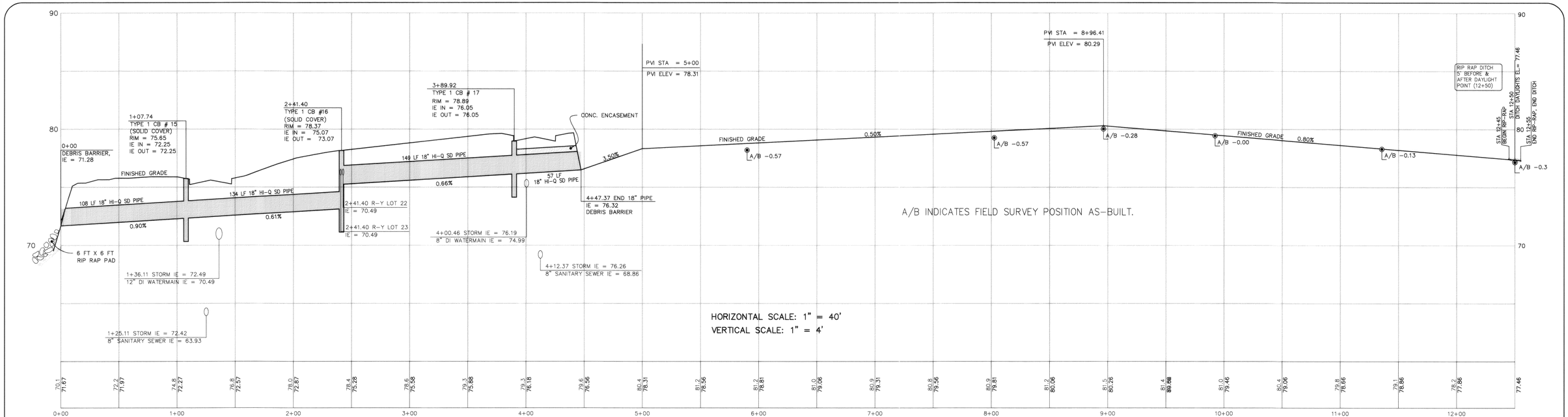
VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050
NORTH OF SMITH ROAD ON THE FRONTAGE ROAD EAST OF I-5
ELEVATION = 81.03

DESIGN DATA

CONVEYANCE DITCH X-SECTION
(no scale)

LEGEND

	CENTERLINE	9	ADJACENT PROPERTY LOT NUMBER
	LOT LINES	376.0	EXISTING GROUND ELEVATION
	PROPERTY/ROW LINE	373.70	PIPE INVERT ELEVATION
	LIMITED ACCESS	YY XXX	ABBREVIATED LAMBERT GRID COORDINATES
	ESTIMATED ROCK		SIDEWALK
	EXISTING GROUND		PAVEMENT
	4" OR 6" ADS ROOF/YARD PIPE	45	LOT NUMBER
	CATCH BASIN or INLET		
	CLEAN-OUT		
	J-BOX		
	STORM SEWER PIPE		



STORM FROM WETLAND TO CONVEYANCE DITCH

DRAWN BY_____ DATE ____
DRAWN BY_____ DATE ____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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

HARRY P. JONES
STATE OF WASHINGTON
9416
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

AS-BUILT

SHIELDS ESTATES

100 YR CONVEYANCE DITCH PLAN AND PROFILE

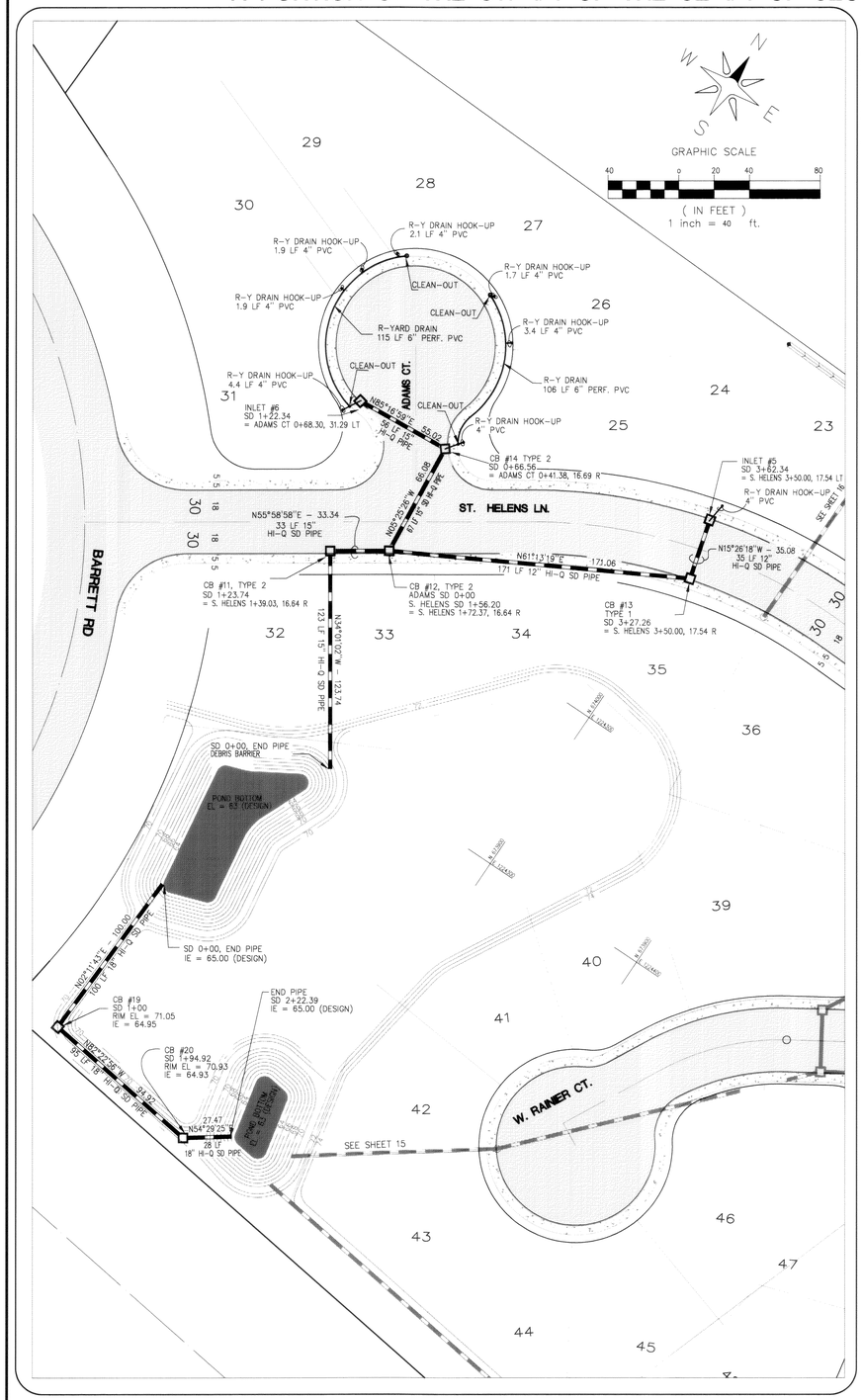
DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

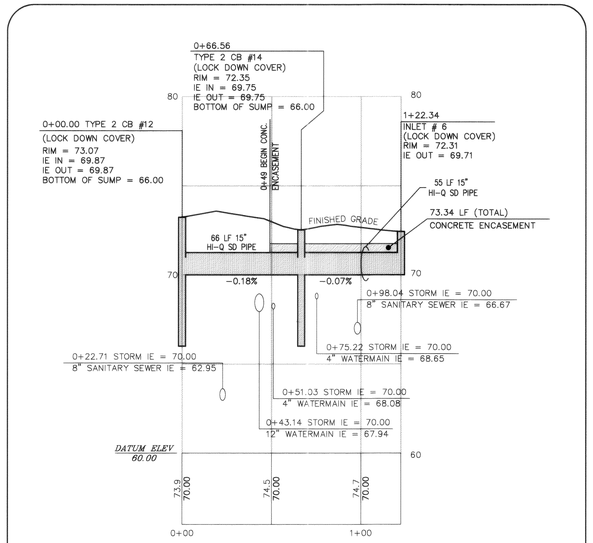
SHEET 16 OF 35

00226.007 2.16.06 KR

E:\97015\AB-SIM3 Wed Apr 08 17:29:50 1998 DALE BUYS

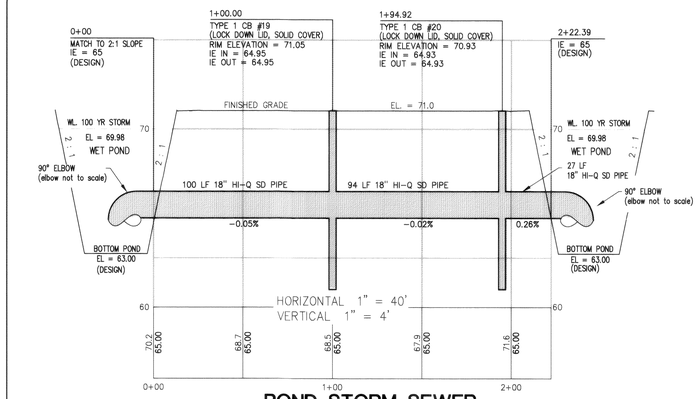
A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28 TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.



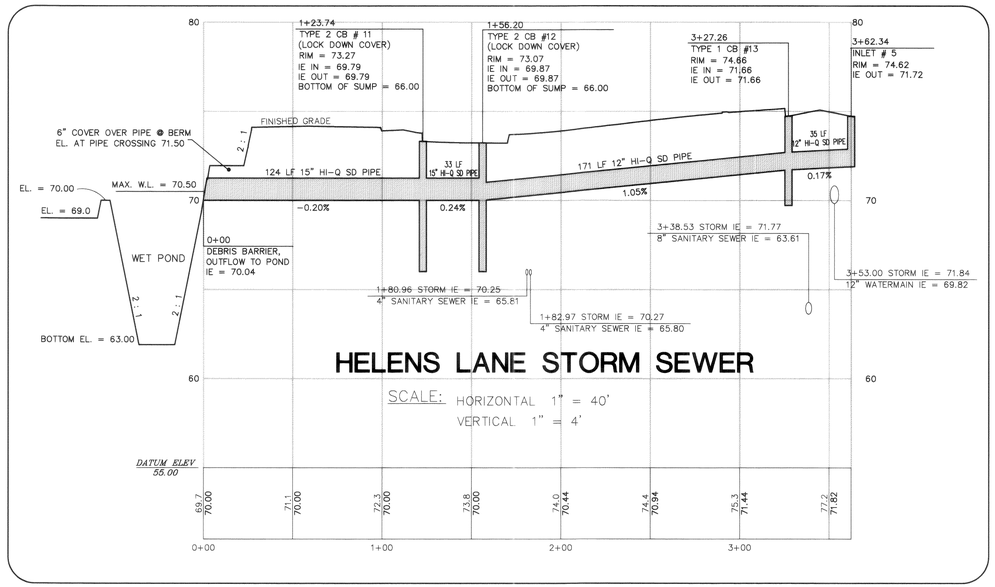


ADAMS CT. STORM SEWER

SCALE: HORIZONTAL 1" = 40'
VERTICAL 1" = 4'



POND STORM SEWER

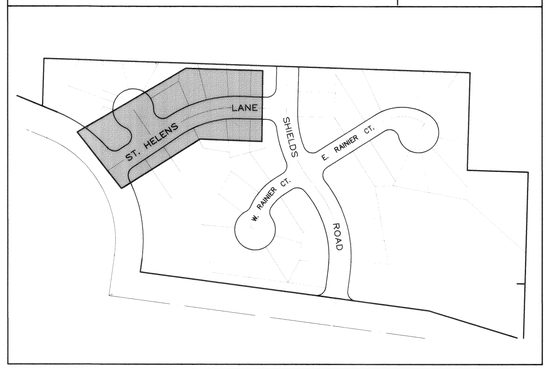


HELENS LANE STORM SEWER

SCALE: HORIZONTAL 1" = 40'
VERTICAL 1" = 4'

STORM DRAINAGE PLAN

JOB NO. 97015



REVISIONS

NO	DATE	BY	NOTE
1.	6-18-97	A.K.	REVISE PER AGENCY REVIEW
2.			
3.			
4.			
5.			

CONTROL DATUM

HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: CASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E, W.M.
Y: 673,433.53
X: 1,226,474.50

MERIDIAN: SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 28, N88°22'49"W

VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050 NORTH OF SMITH RD/ ROAD ON THE FRONTAGE ROAD EAST OF I-5 ELEVATION = 81.03

LEGEND

CENTERLINE	STORM SEWER PIPE
LOT LINES	
PROPERTY/ROW LINE	9 — ADJACENT PROPERTY LOT NUMBER
LIMITED ACCESS	
ESTIMATED ROCK	376.0 — EXISTING GROUND ELEVATION
EXISTING GROUND	373.70 — PIPE INVERT ELEVATION
4" OR 6" ADS ROOF/YARD PIPE	Y XXX — ABBREVIATED LAMBERT GRID COORDINATES
CATCH BASIN or INLET	
CLEAN-OUT	SIDEWALK
J-BOX	PAVEMENT
	45 — LOT NUMBER

DRAWN BY_____ DATE _____
DRAWN BY_____ DATE _____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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

HARRY P. JONES — STATE OF WASHINGTON — 9416 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

AS-BUILT

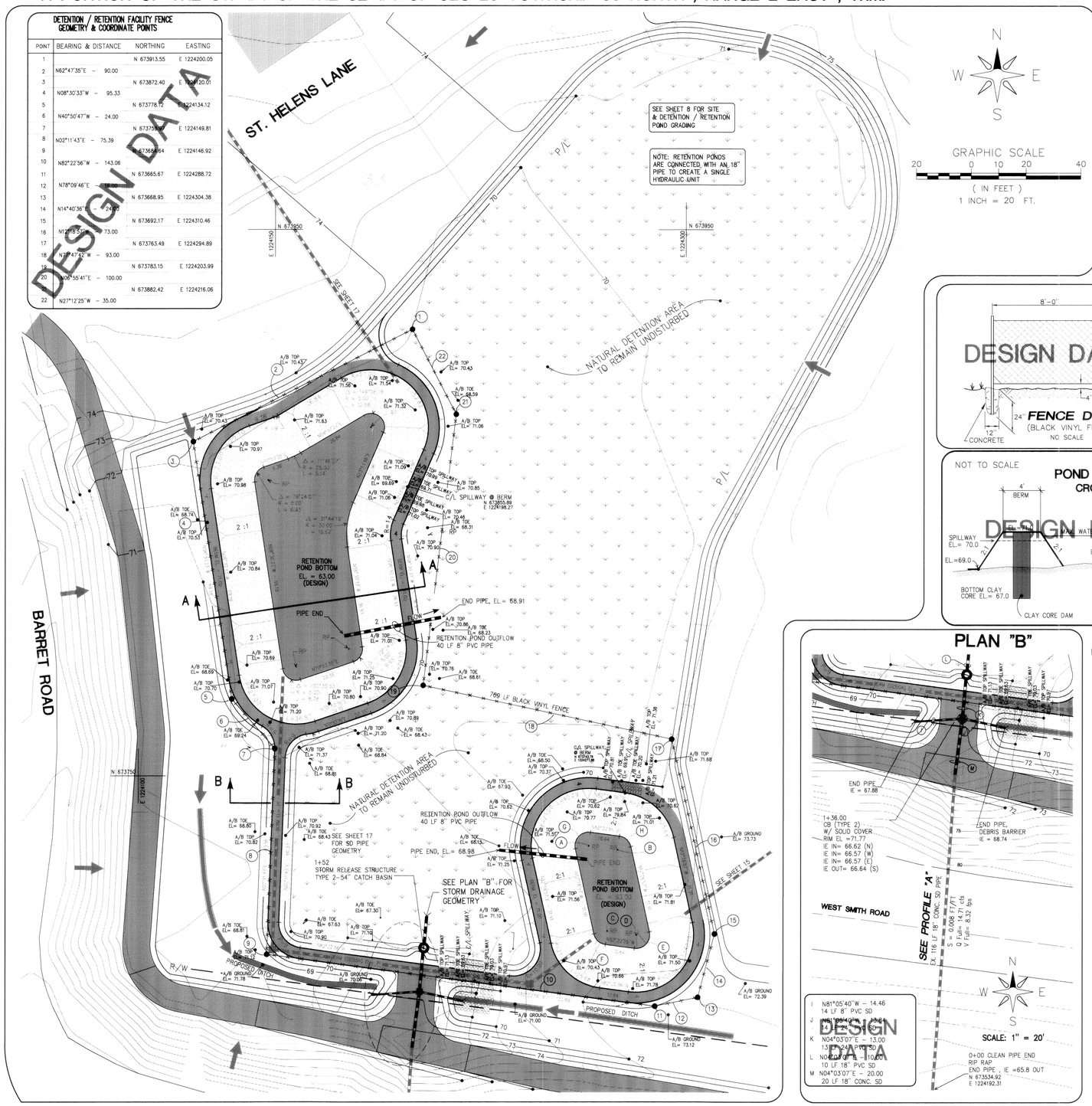
SHIELDS ESTATES
STORM PLAN & PROFILE:
ST. HELENS LN / ADAMS CT / POND

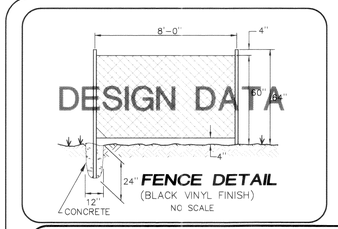
DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

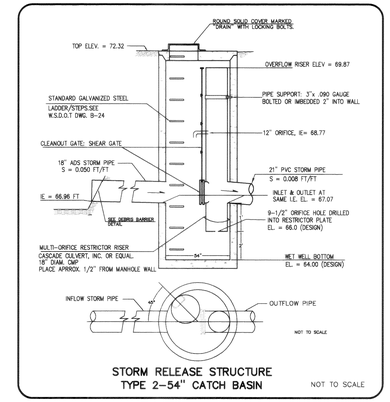
A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28 TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.

DETENTION / RETENTION FACILITY FENCE GEOMETRY & COORDINATE POINTS

POINT	BEARING & DISTANCE	NORTHING	EASTING
1		N 673913.55	E 1224200.05
2	N62°47'35"E – 90.00		
3		N 673872.40	E 1224280.01
4	N08°30'33"W – 95.33		
5		N 673778.12	E 1224134.12
6	N40°50'47"W – 24.00		
7		N 673759.[illegible]	E 1224149.81
8	N02°11'43"E – 75.39		
9		N 673684.64	E 1224146.92
10	N82°22'56"W – 143.06		
11		N 673665.67	E 1224288.72
12	N78°09'46"E – 18.00		
13		N 673668.95	E 1224304.38
14	N14°40'36"E – 24.00		
15		N 673692.17	E 1224310.46
16	N12°18'54"W – 73.00		
17		N 673763.49	E 1224294.89
18	N13°47'42"W – 93.00		
19		N 673783.15	E 1224203.99
20	N06°55'41"E – 100.00		
21		N 673882.42	E 1224216.06
22	N27°12'25"W – 35.00		



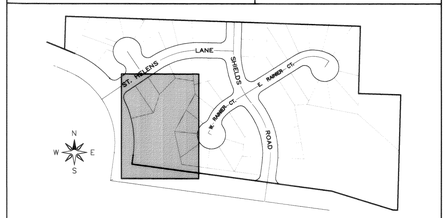




STORM RELEASE STRUCTURE
TYPE 2-54" CATCH BASIN
NOT TO SCALE

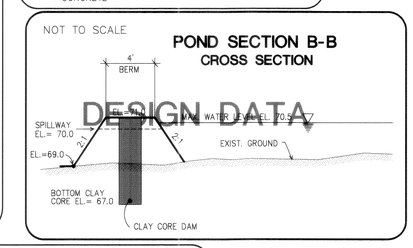
POND GEOMETRY

JOB NO. 97015



LEGEND

- SLOPE DIRECTION INDICATOR
- RETENTION OUTFLOW PIPE
- FINISHED GROUND CONTOUR
- EXISTING GROUND CONTOUR
- 5' HIGH BLACK VINYL FENCE
- AREA TO BE HYDROSEEDED (WETLAND MIX)
- POND BERM WITH CLAY CORE
- POND BOTTOM
- EXISTING RETENTION AREA (WETLAND)



EMERGENCY OVERFLOW SPILLWAY DETENTION POND WEIR SECTION

THE EMERGENCY OVERFLOW SPILLWAY WEIR SECTION CAN BE DESIGNED TO PASS THE 100-YEAR, 24-HOUR DESIGN STORM EVENT FOR DEVELOPED CONDITIONS THAT FOLLOW:

1. $L = \frac{Q_{100}}{(3.21)(H^{3/2})} - (2.4)H = 11.76$
2. $Q_{100} = 14.71$ CFS.*
   L = 11.76 FEET MINIMUM, USE 11.8
   H = 0.5 FEET MINIMUM

* ASSUMING THAT POC 1, 2 & 3 PEAK AT 8.92 MIN, AND POC 4 AT 65.48 MIN (SEE SHEET 19A). ADDING THE HYDROGRAPHS, USING A TRIANGULAR DESIGN STORM RESULTS IN A 14.71 CFS PEAK @ 8.92 MIN. NOTE: PEAK FLOWS WERE COMPUTED USING MODIFIED RATIONAL METHOD

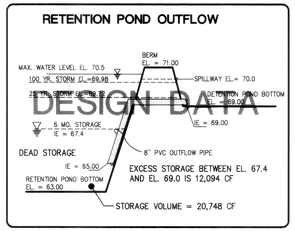
EMERGENCY OVERFLOW SPILLWAY RETENTION POND WEIR SECTION

THE EMERGENCY OVERFLOW SPILLWAY WEIR SECTION CAN BE DESIGNED TO PASS THE 100-YEAR, 24-HOUR DESIGN STORM EVENT FOR DEVELOPED CONDITIONS THAT FOLLOW:

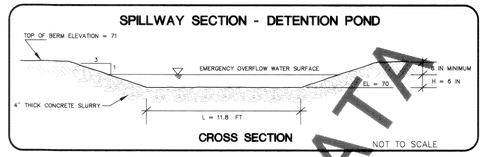
1. $L = \frac{Q_{100}}{(3.21)(H^{3/2})} - (2.4)H$
2. $Q_{100} = 13.42$ CFS* (FOR BOTH SPILLWAYS)
   $Q_{100} = 6.71$ CFS. (EACH SPILLWAY)
   L = 4.73 FEET MINIMUM, USE 4.8 FEET
   H = 0.5 FEET MINIMUM

* ASSUMING THAT POC 1, 2 & 3 PEAK AT 8.92 MIN. (SEE SHEET 19A)
NOTE: PEAK FLOWS WERE COMPUTED USING MODIFIED RATIONAL METHOD

RETENTION POND OUTFLOW

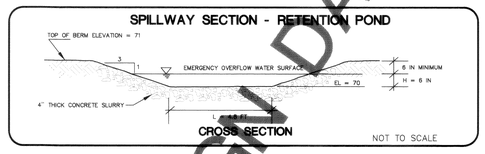


SPILLWAY SECTION - DETENTION POND



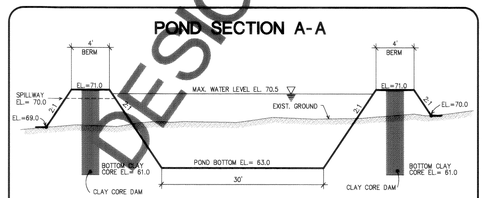
CROSS SECTION
NOT TO SCALE

SPILLWAY SECTION - RETENTION POND



CROSS SECTION
NOT TO SCALE

POND SECTION A-A



CROSS SECTION
NOT TO SCALE

INSTALL 775 LF CLAY CORE DAM ENTIRE LENGTH OF BERM. SEE PLAN VIEW (DEPTH VARIES). SEE X-SECTIONS A-A & B-B)

NOTE:
SEE HYDRAULIC CALCULATIONS FOR EX. 18" CONCRETE PIPE ON SHEET 19 OF 35.

CONTROL DATUM

HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: BASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E
Y: 673,433.53
X: 1,226,474.60

MERIDIAN: SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 28, N88°22'46"W

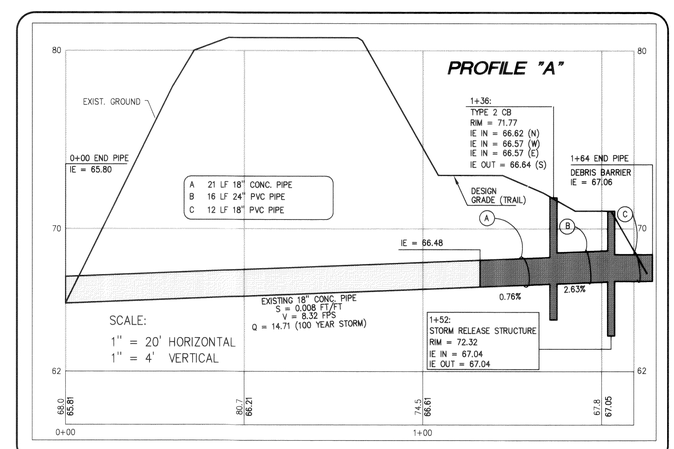
VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050
NORTH OF SMITH ROAD ON THE FRONTAGE ROAD EAST OF I-5
ELEVATION = 81.03

REVISIONS

NO	DATE	BY	NOTE
1.			
2.			
3.			
4.			
5.	6/20/97	RL	PER CITY PLAN REVIEW

	RETENTION POND COORDINATE POINTS		
A	N 673724.40	E 1224264.53	RP
B	N 673722.99	E 1224275.07	RP
C	N 673691.22	E 1224271.34	RP
D	N 673693.63	E 1224261.84	RP

	RETENTION POND GEOMETRY		
E	Δ = 109°56'01"	R = 5.00	L = 9.59
F	Δ = 70°03'59"	R = 5.00	L = 6.11
G	Δ = 109°56'01"	R = 5.00	L = 9.59
H	Δ = 70°03'59"	R = 5.00	L = 6.11



DRAWN BY_____ DATE _____
DRAWN BY_____ DATE _____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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 — 1/13/98 DATE

HARRY P. JONES — STATE OF WASHINGTON — 8416 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

AS-BUILT
SHIELDS ESTATES
DETENTION & RETENTION POND GEOMETRY & DETAILS

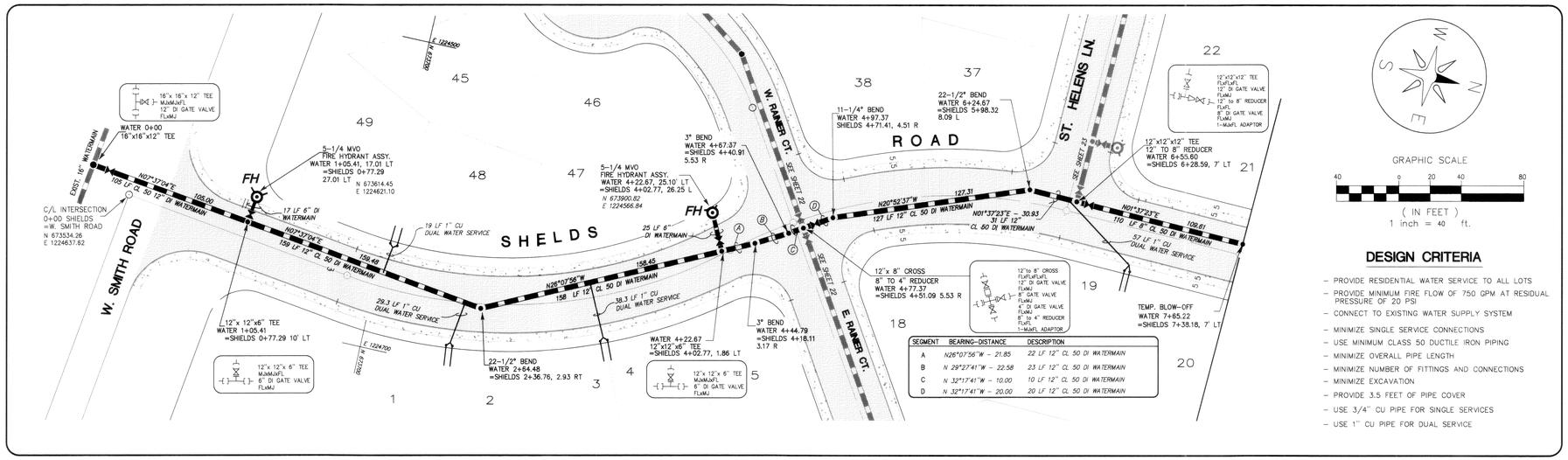
DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

SHEET 20 OF 35

00280.009 3-16-06

E:\97015\A6-POND Wed Apr 08 16:46:02 1998 DALE BUYS

A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28 TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.



GRAPHIC SCALE

40 0 20 40 80

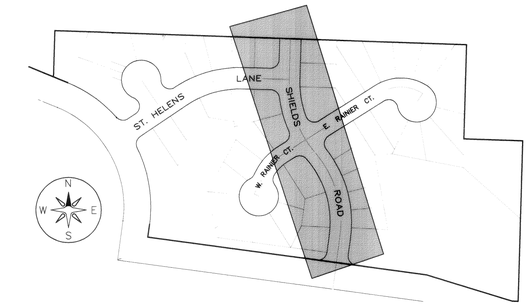
(IN FEET)
1 inch = 40 ft.

DESIGN CRITERIA

- PROVIDE RESIDENTIAL WATER SERVICE TO ALL LOTS
- PROVIDE MINIMUM FIRE FLOW OF 750 GPM AT RESIDUAL PRESSURE OF 20 PSI
- CONNECT TO EXISTING WATER SUPPLY SYSTEM
- MINIMIZE SINGLE SERVICE CONNECTIONS
- USE MINIMUM CLASS 50 DUCTILE IRON PIPING
- MINIMIZE OVERALL PIPE LENGTH
- MINIMIZE NUMBER OF FITTINGS AND CONNECTIONS
- MINIMIZE EXCAVATION
- PROVIDE 3.5 FEET OF PIPE COVER
- USE 3/4" CU PIPE FOR SINGLE SERVICES
- USE 1" CU PIPE FOR DUAL SERVICE

WATER DISTRIBUTION - SHIELDS ROAD

JOB NO. 97015



REVISIONS

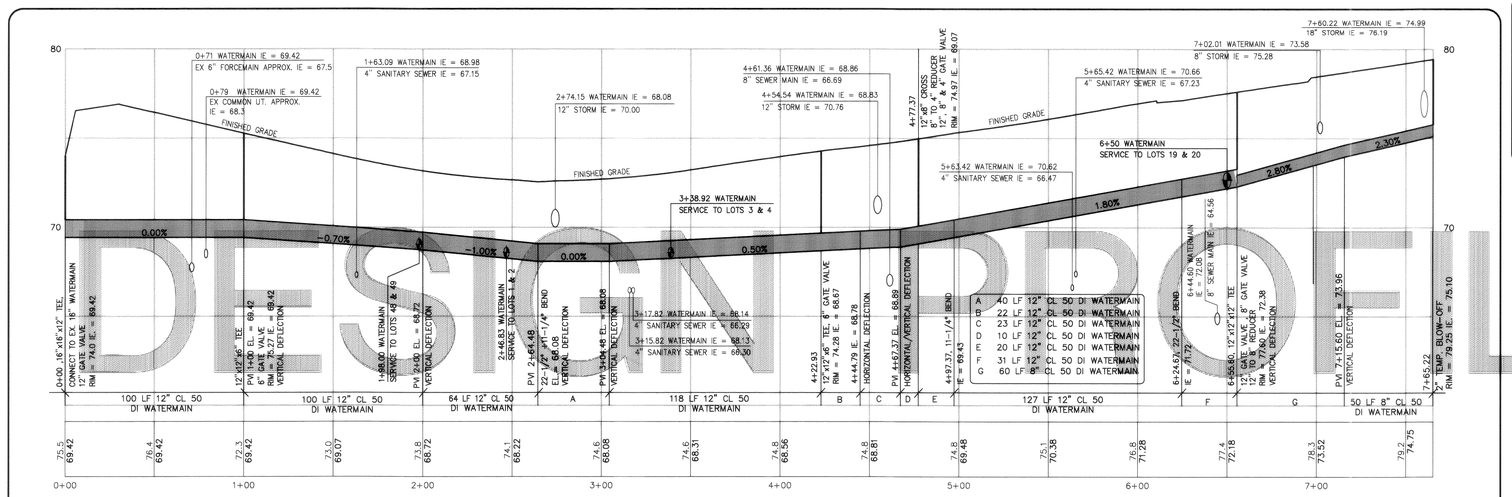
NO	DATE	BY	NOTE
1.			
2.			
3.			
4.			
5.			

CONTROL DATUM

HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: CASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E, W.M.
Y: 673,433.53
X: 1,226,474.60

MERIDIAN: SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 28, N88°22'49"W

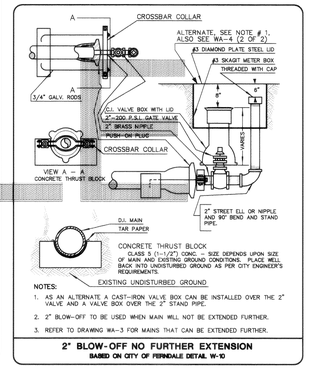
VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050 NORTH OF SMITH ROAD ON THE FRONTAGE ROAD EAST OF I-5 ELEVATION = 81.03



WATER DISTRIBUTION PROFILE SHIELDS ROAD

VERTICAL SCALE: 1" = 4'
HORIZONTAL SCALE: 1" = 40'

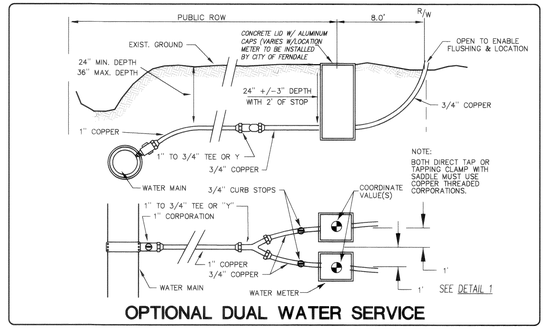
CENTERLINE	
LOT LINES	
PROPERTY/ROW LINE	
LIMITED ACCESS	
ESTIMATED ROCK	
EXISTING GROUND	
1" OR 3/4" COPPER WATER SERVICE	
LOT SERVICE (PROFILE)	
FIRE HYDRANT	
BLOW-OFF	
DUCTILE IRON WATERMAIN	
9	ADJACENT PROPERTY LOT NUMBER
376.0	EXISTING GROUND ELEVATION
373.70	PIPE INVERT ELEVATION
XXXX	ABBREVIATED LAMBERT GRID COORDINATES
	SIDEWALK
	PAVEMENT
45	LOT NUMBER



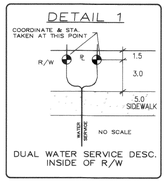
2" BLOW-OFF NO FURTHER EXTENSION
BASED ON CITY OF FERNDALE DETAIL W-10

WATER 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. ALL WATER MAINS SHALL BE DUCTILE IRON, THICKNESS CLASS 50 WITH CEMENT LINING.
3. TEST PRESSURE FOR WATER SHALL BE 200 PSI AND SHALL BE DONE IN THE PRESENCE OF THE CITY.
4. TWO INCH BLOW-OFF SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAIL WA-3 OR WA-4.
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, PER WA-8.
7. CONNECTION TO EXISTING CITY WATER MAIN SHALL BE BY THE CITY UPON SATISFACTORY PRESSURE AND SANITARY TESTING.
8. WATER SERVICES SHALL BE IN ACCORDANCE WITH CITY SPECIFICATIONS, PER WA-5 & WA-6.
9. CONTRACTOR SHALL CONTACT UTILITY LOCATION SERVICE AT (800)424-5555, 48 HOURS IN ADVANCE OF WORK.
10. CONTRACTOR SHALL RESTORE RIGHT-OF-WAY TO ORIGINAL CONDITIONS.
11. FIRE HYDRANT INSTALLATION SHALL BE IN ACCORDANCE WITH CITY SPEC. WA-1.
12. A REVOCABLE ENCROACHMENT PERMIT SHALL BE OBTAINED PRIOR TO COMMENCING WORK IN THE RIGHT-OF-WAY.
13. NO FINAL TESTING UNTIL ALL UNDERGROUND UTILITIES ARE IN PLACE.
14. SINGLE SERVICES SHALL BE 3/4" COPPER PIPE
15. DUAL SERVICES SHALL BE 1" COPPER PIPE.
16. WATER PURIFICATION TESTS-2 TESTS, 24 HOURS APART. ZERO BACTERIA & ZERO ATYPICAL COUNTS FOR BOTH TESTS.



OPTIONAL DUAL WATER SERVICE

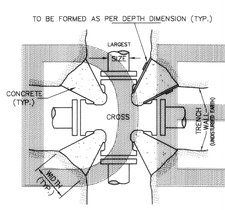


DUAL WATER SERVICE DESC. INSIDE OF R/W

100 P.S.I. OPERATING PRESSURE

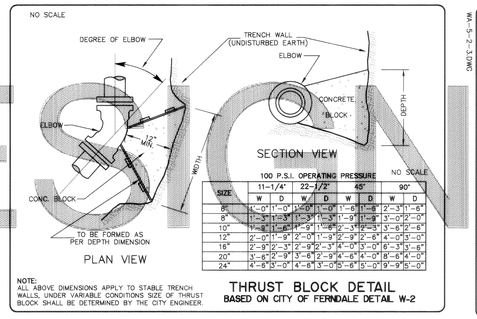
SIZE	WIDTH	DEPTH
6"	1' - 0"	1' - 0"
8"	1' - 3"	1' - 3"
10"	1' - 6"	1' - 6"
12"	1' - 9"	1' - 9"
16"	2' - 3"	2' - 6"
20"	2' - 6"	3' - 6"
24"	3' - 0"	4' - 0"

NOTE:
ALL ABOVE DIMENSIONS APPLY TO STABLE TRENCH WALLS, UNDER VARIABLE CONDITIONS SIZE OF THRUST BLOCK SHALL BE DETERMINED BY THE CITY ENGINEER.



THRUST BLOCK DETAIL
BASED ON CITY OF FERNDALE DETAIL W-4

NO SCALE



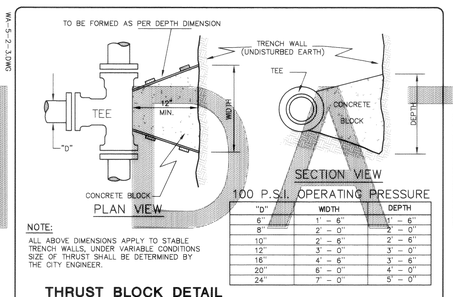
NO SCALE

SIZE	100 P.S.I. OPERATING PRESSURE 11-1/4°		22-1/2°		45°		90°	
	W	D	W	D	W	D	W	D
6"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	1'-6"	2'-3"	1'-6"
8"	1'-3"	1'-3"	1'-3"	1'-3"	1'-9"	1'-9"	3'-0"	2'-0"
10"	1'-6"	1'-6"	1'-9"	1'-6"	2'-3"	2'-3"	3'-6"	2'-6"
12"	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"	2'-6"	4'-0"	3'-0"
16"	2'-9"	2'-3"	2'-9"	2'-3"	4'-0"	3'-0"	6'-3"	4'-6"
20"	3'-6"	2'-9"	3'-6"	2'-9"	4'-6"	4'-0"	8'-6"	4'-0"
24"	4'-8"	3'-0"	4'-8"	3'-0"	6'-6"	5'-0"	9'-9"	5'-0"

NOTE:
ALL ABOVE DIMENSIONS APPLY TO STABLE TRENCH WALLS, UNDER VARIABLE CONDITIONS SIZE OF THRUST BLOCK SHALL BE DETERMINED BY THE CITY ENGINEER.

THRUST BLOCK DETAIL
BASED ON CITY OF FERNDALE DETAIL W-2

DWG:t-2-5-WA



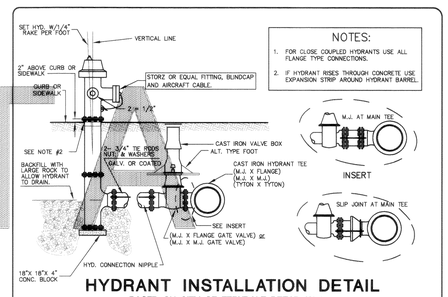
100 P.S.I. OPERATING PRESSURE

"D"	WIDTH	DEPTH
6"	1' - 6"	1' - 6"
8"	2' - 0"	2' - 0"
10"	2' - 6"	2' - 6"
12"	3' - 0"	3' - 0"
16"	4' - 6"	3' - 6"
20"	6' - 0"	4' - 0"
24"	7' - 0"	5' - 0"

NOTE:
ALL ABOVE DIMENSIONS APPLY TO STABLE TRENCH WALLS, UNDER VARIABLE CONDITIONS SIZE OF THRUST SHALL BE DETERMINED BY THE CITY ENGINEER.

THRUST BLOCK DETAIL
BASED ON CITY OF FERNDALE DETAIL W-2

NO SCALE



NOTES:
1. FOR CLOSE COUPLED HYDRANTS USE ALL FLANGE TYPE CONNECTIONS.
2. IF HYDRANT RISES THROUGH CONCRETE USE EXPANSION STRIP AROUND HYDRANT BARREL.

HYDRANT INSTALLATION DETAIL
BASED ON CITY OF FERNDALE DETAIL W-1

DRAWN BY_____ DATE _____
DRAWN BY_____ DATE _____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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

HARRY P. JONES — STATE OF WASHINGTON — 9416 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

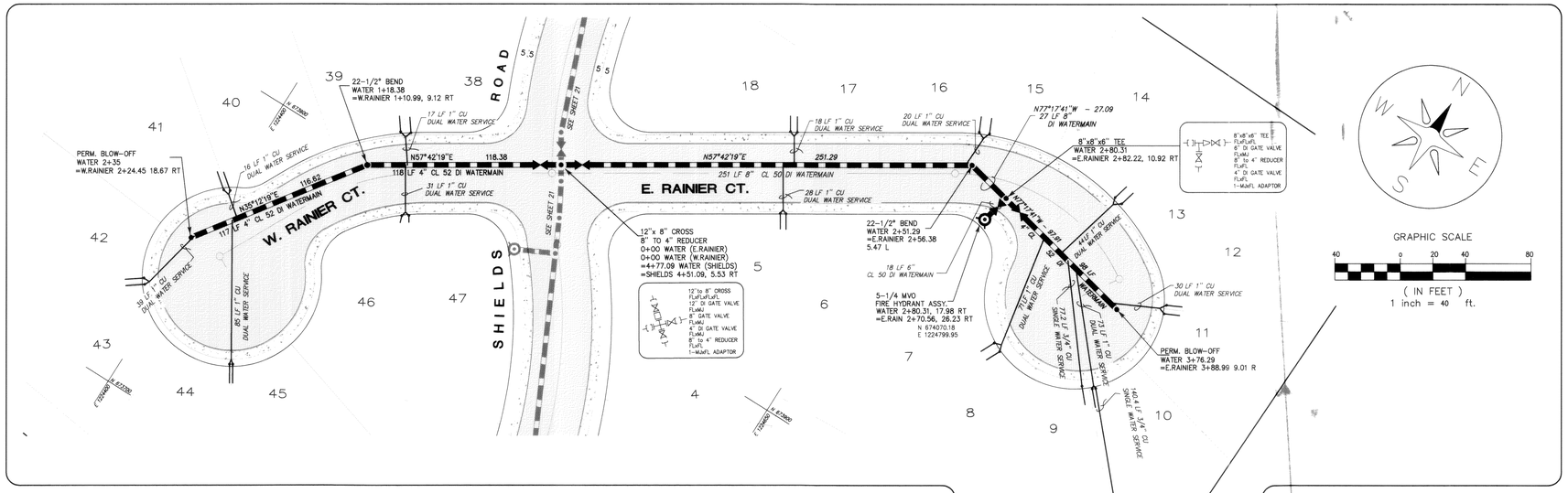
AS-BUILT
SHIELDS ESTATES
WATERMAIN PLAN & PROFILE:
SHIELDS ROAD

DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

SHEET 21 OF 35

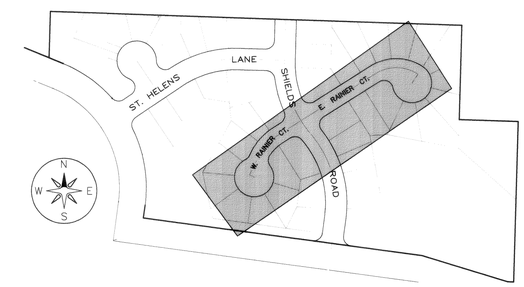
E:\97015\A6-WTR1 Wed Apr 08 18:17:29 1998 DALE BUYS

A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28 TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.



WATER DISTRIBUTION - EAST & WEST RAINIER

JOB NO. 97015



REVISIONS

NO	DATE	BY	NOTE
1.			
2.			
3.			
4.			
5.			

CONTROL DATUM

HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: CASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E, W.M.
Y: 673,433.53
X: 1,226,474.60

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VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050 NORTH OF SMITH ROAD ON THE FRONTAGE ROAD EAST OF I-5
ELEVATION = 81.03

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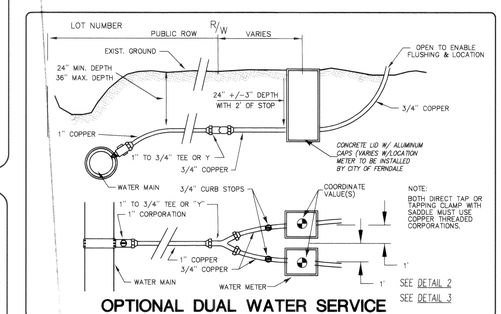
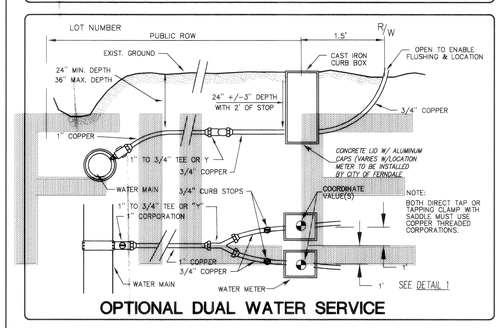
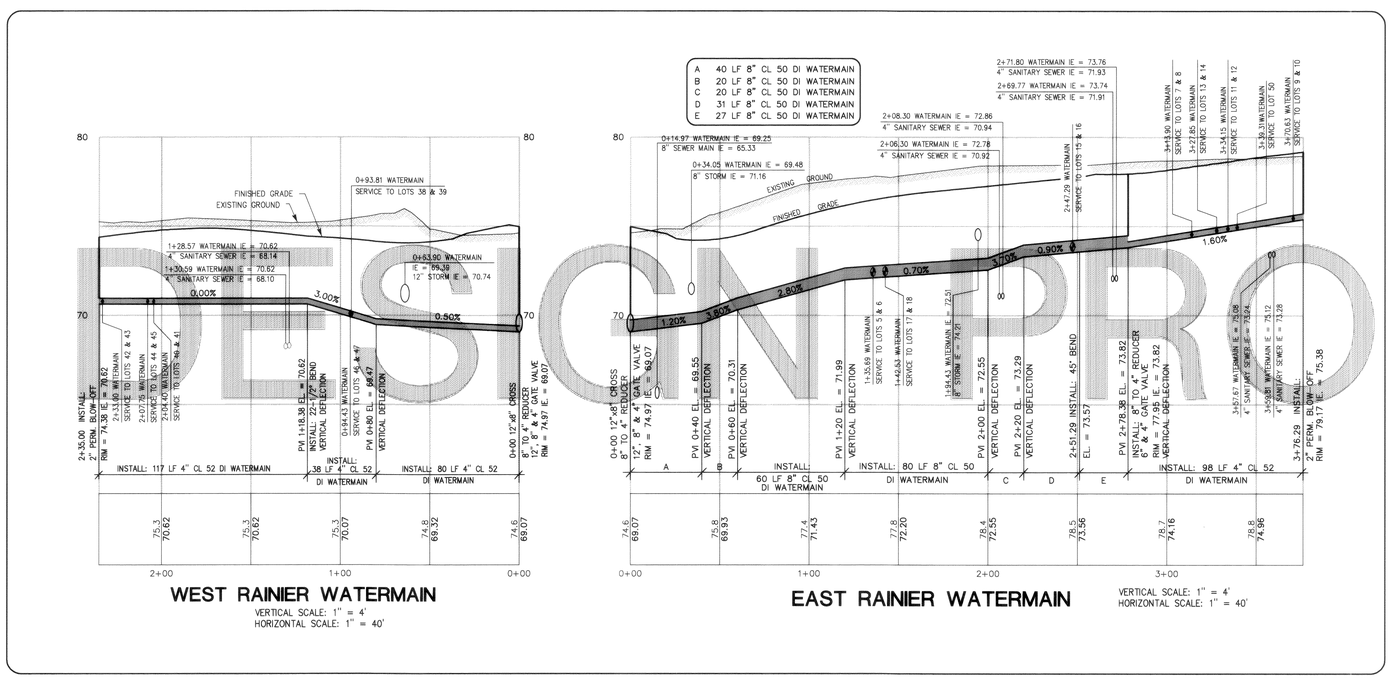


OPTIONAL DUAL WATER SERVICE

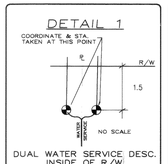


OPTIONAL DUAL WATER SERVICE

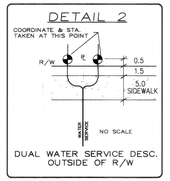


WEST RAINIER WATERMAIN
VERTICAL SCALE: 1" = 4'
HORIZONTAL SCALE: 1" = 40'

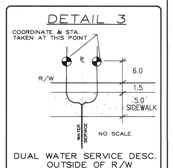
EAST RAINIER WATERMAIN
VERTICAL SCALE: 1" = 4'
HORIZONTAL SCALE: 1" = 40'



DUAL WATER SERVICE DESC. INSIDE OF R/W



DUAL WATER SERVICE DESC. OUTSIDE OF R/W



DUAL WATER SERVICE DESC. OUTSIDE OF R/W

DESIGN CRITERIA

- PROVIDE RESIDENTIAL WATER SERVICE TO ALL LOTS
- PROVIDE MINIMUM FIRE FLOW OF 750 GPM AT RESIDUAL PRESSURE OF 20 PSI
- CONNECT TO EXISTING WATER SUPPLY SYSTEM
- MINIMIZE SINGLE SERVICE CONNECTIONS
- USE MINIMUM CLASS 50 DUCTILE IRON PIPING
- MINIMIZE OVERALL PIPE LENGTH
- MINIMIZE NUMBER OF FITTINGS AND CONNECTIONS
- MINIMIZE EXCAVATION
- PROVIDE 3.5 FEET OF PIPE COVER
- USE 3/4" CU PIPE FOR SINGLE SERVICES
- USE 1" CU PIPE FOR DUAL SERVICE

CENTERLINE	9	ADJACENT PROPERTY LOT NUMBER	
LOT LINES			
PROPERTY/ROW LINE	376.0	EXISTING GROUND ELEV	
LIMITED ACCESS	373.70	PIPE INVERT ELEVATION	
ESTIMATED ROCK	YYY XXX	ABBREVIATED LAMBERT GRID COORDINATES	
EXISTING GROUND			
1" OR 3/4" CU H2o SERVICE		SIDEWALK	
LOT SERVICE (PROFILE)		PAVEMENT	
FIRE HYDRANT	FH	45	
BLOW-OFF			
DUCTILE IRON WATERMAIN			

DRAWN BY_____ DATE _____
DRAWN BY_____ DATE _____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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

HARRY P. JONES — STATE OF WASHINGTON — 9416 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 10, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

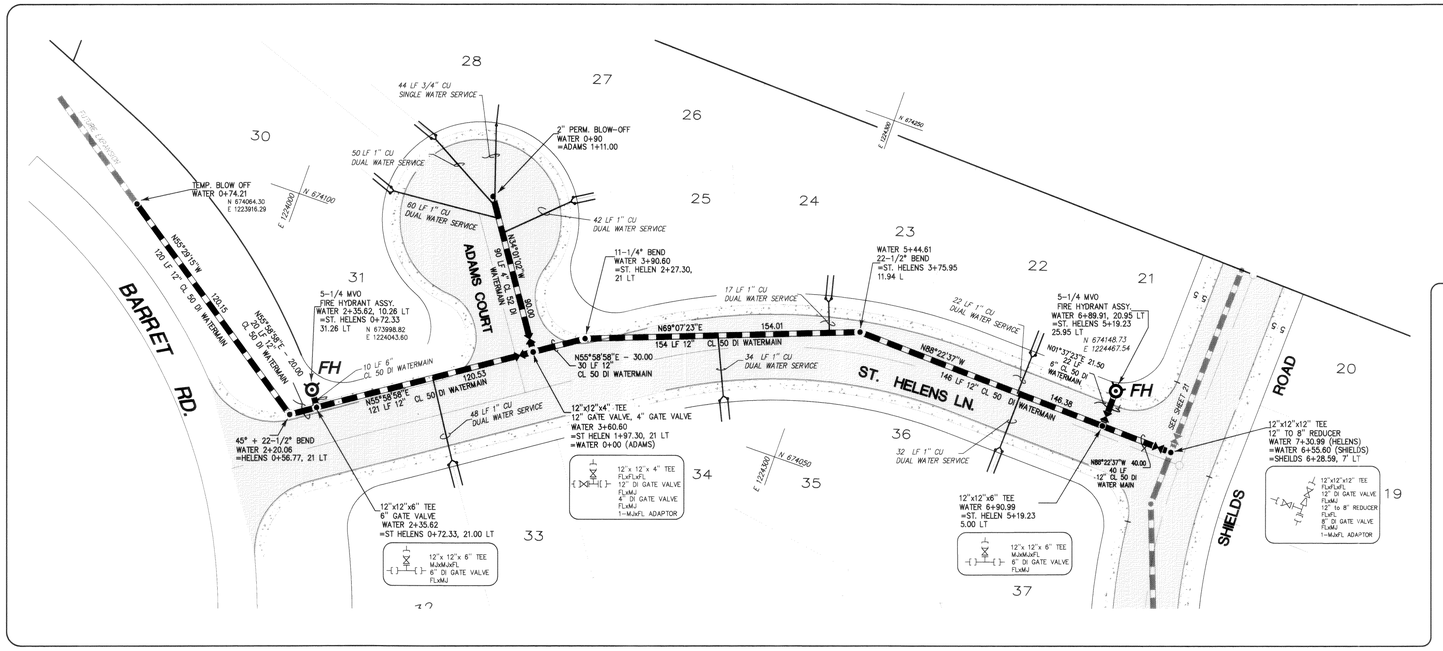
AS-BUILT
SHIELDS ESTATES
WATERMAIN PLAN & PROFILE:
RAINIER COURT

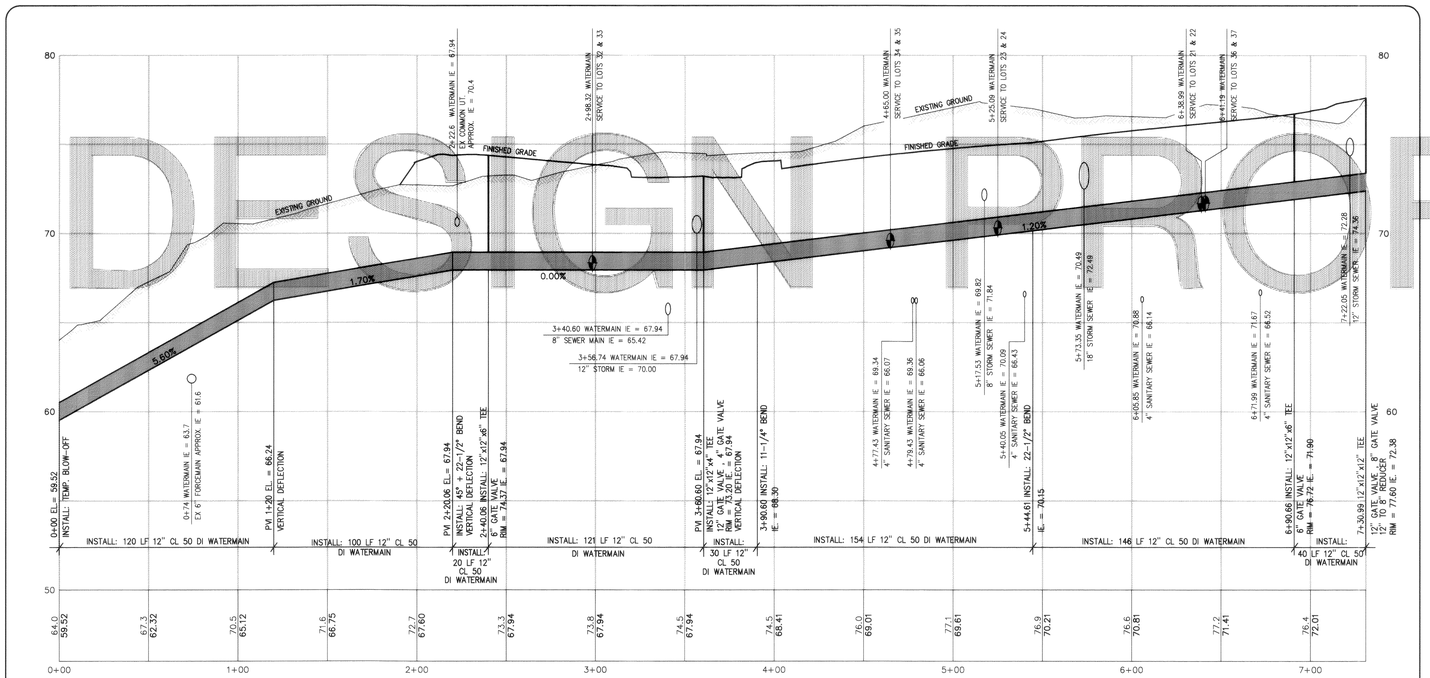
DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

SHEET 22 OF 35

A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28 TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.

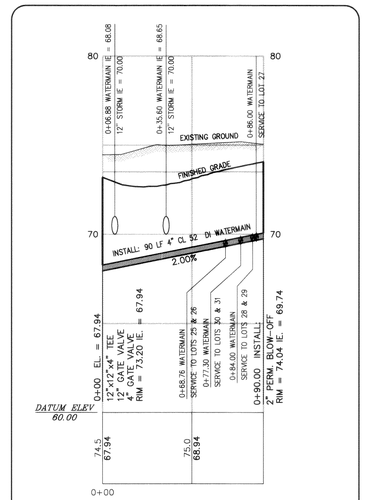
WATER DISTRIBUTION - ST. HELENS / ADAMS | JOB NO. 97015





WATER DISTRIBUTION PROFILE ST. HELENS LANE

VERTICAL SCALE: 1" = 4'
HORIZONTAL SCALE: 1" = 40'



WATER DISTRIBUTION PROFILE ADAMS COURT

VERTICAL SCALE: 1" = 4'
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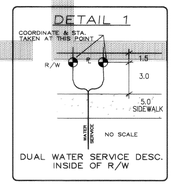
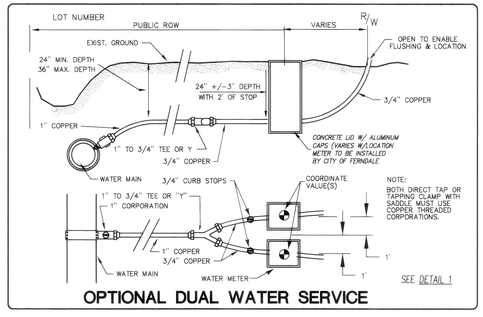
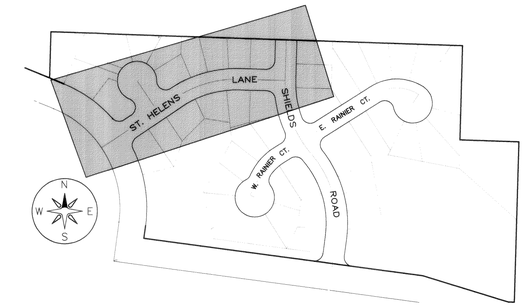




OPTIONAL DUAL WATER SERVICE



REVISIONS

NO	DATE	BY	NOTE
1.			
2.			
3.			
4.			
5.			

CONTROL DATUM

HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
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	CENTERLINE	9	ADJACENT PROPERTY LOT NUMBER
	LOT LINES	376.0	EXISTING GROUND ELEVATION
	PROPERTY/ROW LINE	373.70	PIPE INVERT ELEVATION
	LIMITED ACCESS	YY XXX	ABBREVIATED LAMBERT GRID COORDINATES
	ESTIMATED ROCK		SIDEWALK
	EXISTING GROUND		PAVEMENT
	1" OR 3/4" COPPER WATER SERVICE	45	LOT NUMBER
	LOT SERVICE (PROFILE)		
FH	FIRE HYDRANT		
	BLOW-OFF		
	DUCTILE IRON WATERMAIN		

DESIGN CRITERIA

- PROVIDE RESIDENTIAL WATER SERVICE TO ALL LOTS
- PROVIDE MINIMUM FIRE FLOW OF 750 GPM AT RESIDUAL PRESSURE OF 20 PSI
- CONNECT TO EXISTING WATER SUPPLY SYSTEM
- MINIMIZE SINGLE SERVICE CONNECTIONS
- USE MINIMUM CLASS 50 DUCTILE IRON PIPING
- MINIMIZE OVERALL PIPE LENGTH
- MINIMIZE NUMBER OF FITTINGS AND CONNECTIONS
- MINIMIZE EXCAVATION
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DRAWN BY_____ DATE _____
DRAWN BY_____ DATE _____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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 _____

HARRY P. JONES — STATE OF WASHINGTON — 8411 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

AS-BUILT
SHIELDS ESTATES
WATER MAIN PLAN & PROFILE:
ST. HELENS LANE / ADAMS COURT

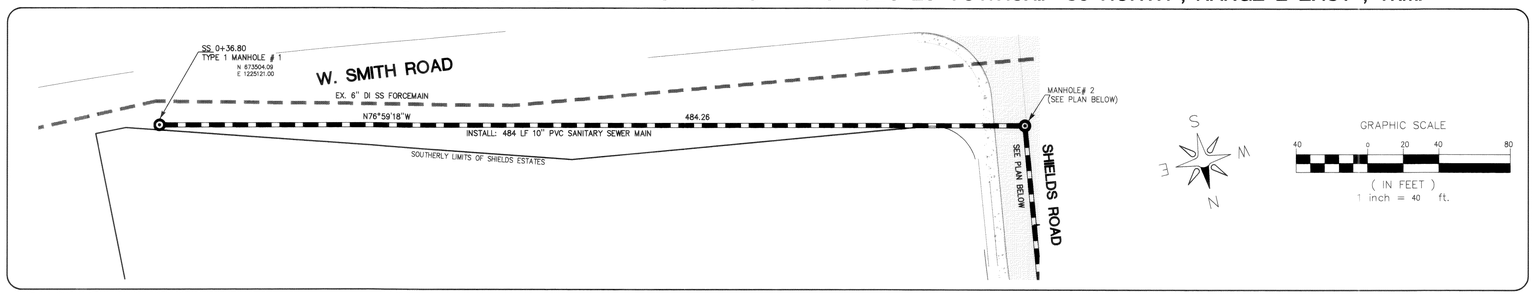
DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

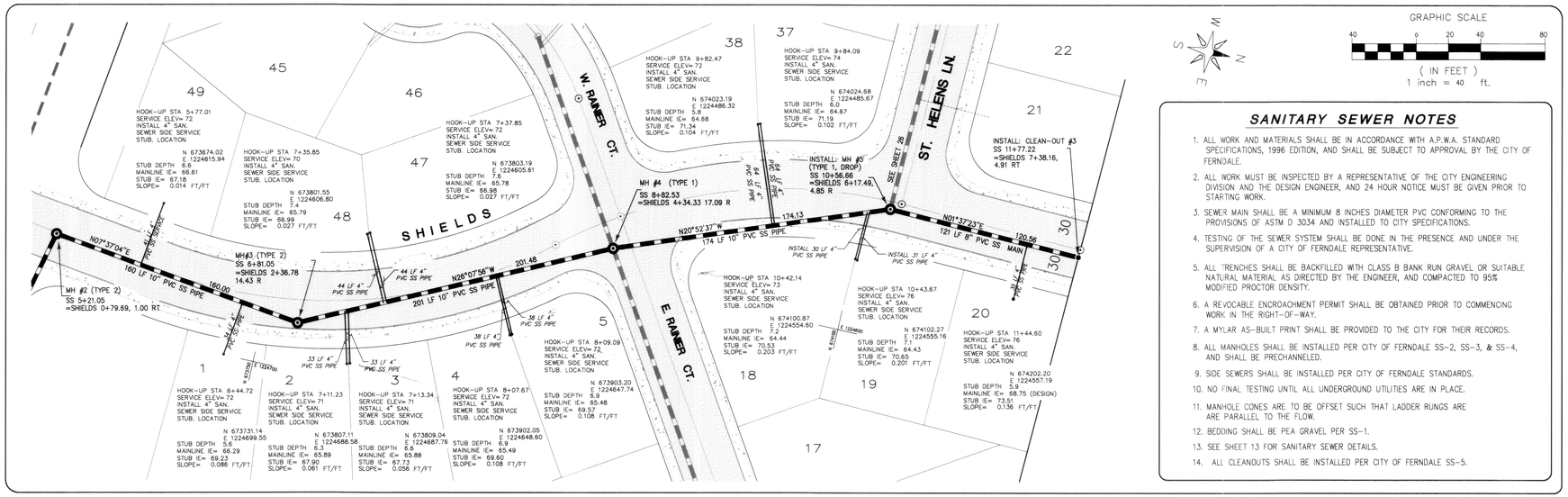
SHEET 23 OF 35

00226.012 2-16-06 RR

E:\97015\AB-WTR3 Wed Apr 08 18:26:04 1998 DALE BUYS

A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28 TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.



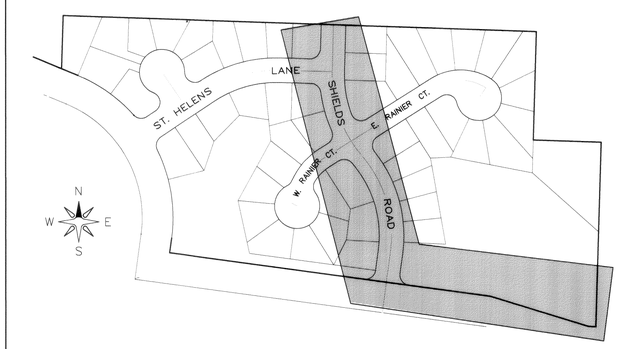


SANITARY SEWER NOTES

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. 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 STARTING WORK.
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.
7. A MYLAR AS-BUILT PRINT SHALL BE PROVIDED TO THE CITY FOR THEIR RECORDS.
8. ALL MANHOLES SHALL BE INSTALLED PER CITY OF FERNDALE SS-2, SS-3, & SS-4, AND SHALL BE PRECHANNELED.
9. SIDE SEWERS SHALL BE INSTALLED PER CITY OF FERNDALE STANDARDS.
10. NO FINAL TESTING UNTIL ALL UNDERGROUND UTILITIES ARE IN PLACE.
11. MANHOLE CONES ARE TO BE OFFSET SUCH THAT LADDER RUNGS ARE ARE PARALLEL TO THE FLOW.
12. 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.

SANITARY SEWER - SHIELDS ROAD

JOB NO. 97015



REVISIONS

NO	DATE	BY	NOTE
1.			
2.			
3.			
4.			
5.			

CONTROL DATUM

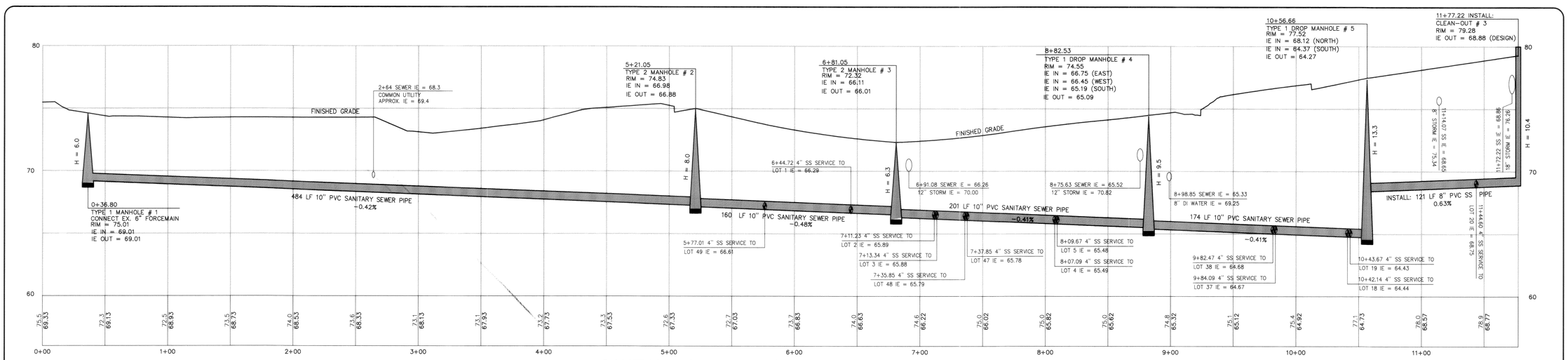
HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: CASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E, W.M.
Y: 673,433.53
X: 1,226,474.50

MERIDIAN: SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 28, N88°22'49"W

VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050 NORTH OF SMITH ROAD ON THE FRONTAGE ROAD EAST OF I-5 ELEVATION = 81.03

LEGEND

	CENTERLINE	376.0	EXISTING GROUND ELEVATION
	LOT LINES	373.70	FINISHED GRADE ELEVATION
R/W	PROPERTY/ROW LINE	▲	TOP OF ROCK ELEV. AT TEST PIT
	LIMITED ACCESS	Y: X: XXX	ABBREVIATED LAMBERT GRID COORDINATES
	EXISTING GROUND	46	LOT NUMBER
	SANITARY SEWER MANHOLE		SANITARY SEWER SERVICE AT MAINLINE I.E. (PROFILE)
	CLEAN-OUT		
	4" PVC SS SERVICE		
	PVC SS MAIN		EXISTING 6" DI SS FORCEMAIN



SANITARY SEWER PROFILE SMITH - SHIELDS ROAD

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'

DRAWN BY_____ DATE _____
DRAWN BY_____ DATE _____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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

HARRY P. JONES — STATE OF WASHINGTON — 9416 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

AS-BUILT
SHIELDS ESTATES
SANITARY SEWER PLAN & PROFILE
SHIELDS ROAD

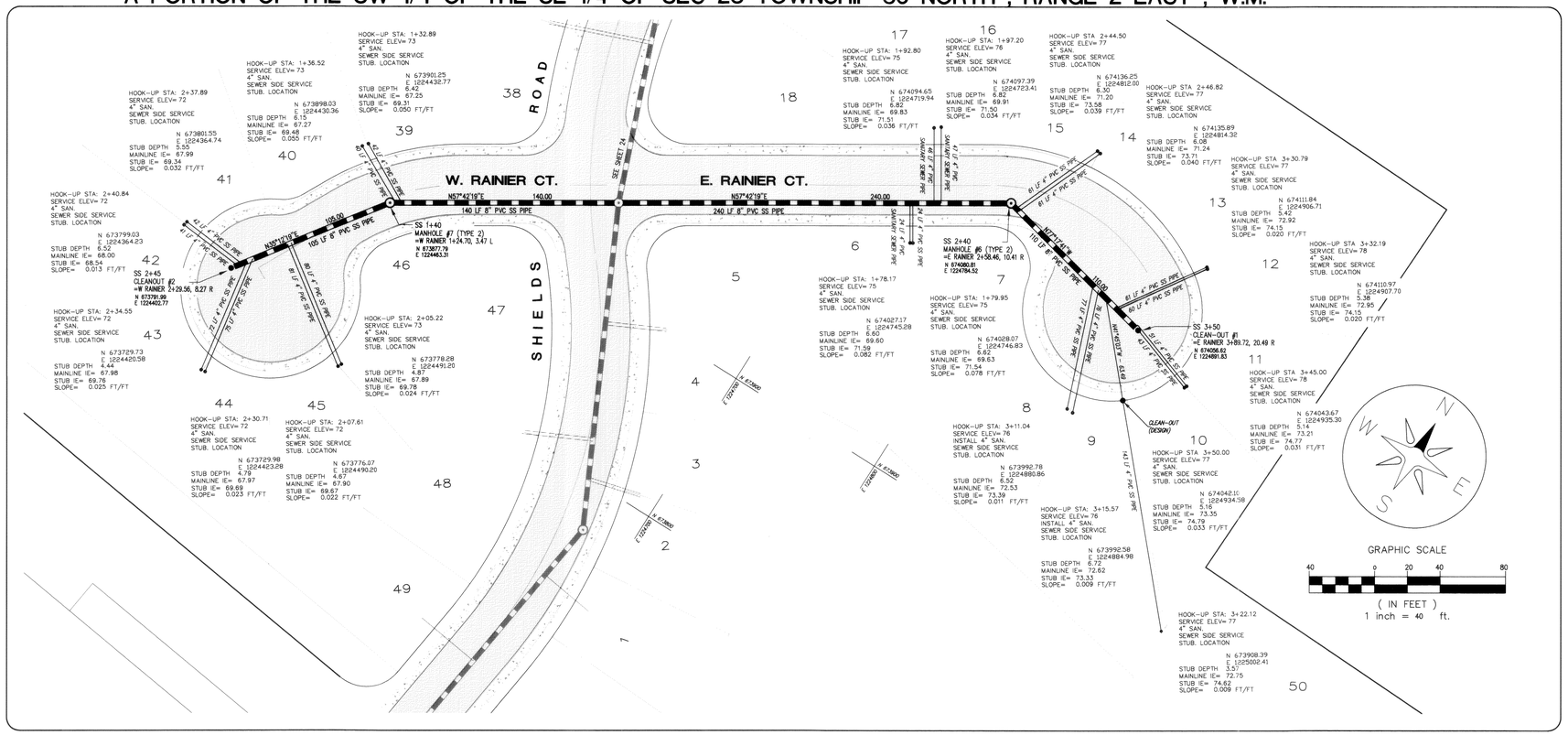
DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

SHEET 24 OF 35

00224.013 3-16-06 KR

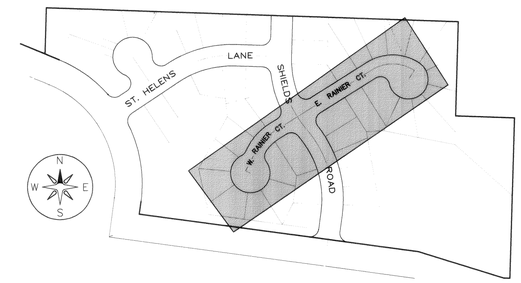
E:\97015\AB-SW01 Wed Apr 08 18:05:24 1998 DALE BUYS

A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28 TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.



SANITARY SEWER - EAST & WEST RAINIER

JOB NO. 97015



REVISIONS			
NO	DATE	BY	NOTE
1.			
2.			
3.			
4.			
5.			

CONTROL DATUM

HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: CASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E, W.M.
Y: 673,433.53
X: 1,226,474.60

MERIDIAN: SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 28, N88°22'49"W

VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050
NORTH OF SMITH ROAD ON THE FRONTAGE ROAD EAST OF I-5
ELEVATION = 81.03

SANITARY SEWER NOTES

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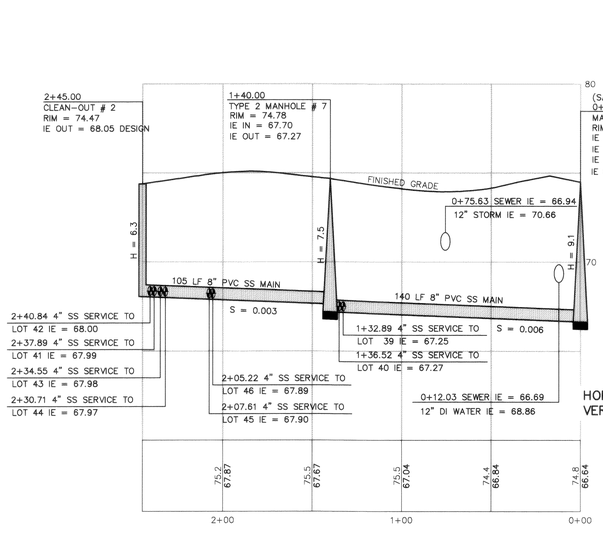
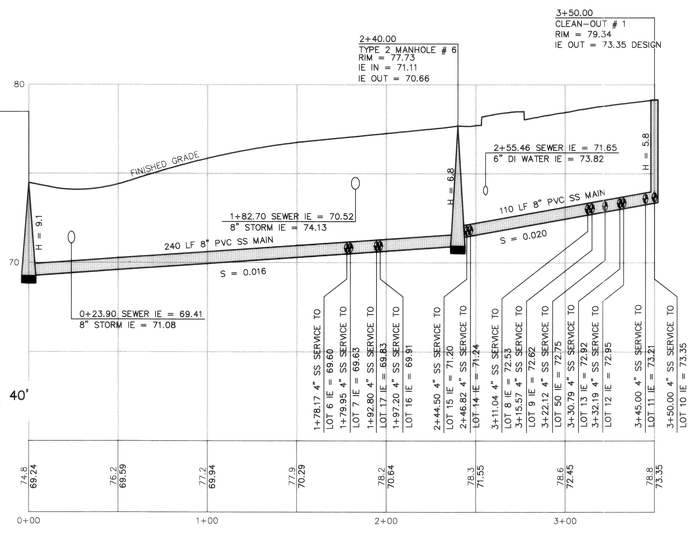
13. SEE SHEET 13 FOR SANITARY SEWER DETAILS.
14. ALL CLEANOUTS SHALL BE INSTALLED PER CITY OF FERNDALE SS-5.



WEST RAINIER SANITARY SEWER MAIN



EAST RAINIER SANITARY SEWER MAIN

LEGEND

	CENTERLINE	376.0	EXISTING GROUND ELEVATION
	LOT LINES	373.70	FINISHED GRADE ELEVATION
R/W	PROPERTY/ROW LINE		
	LIMITED ACCESS	Y XXX	ABBREVIATED LAMBERT GRID COORDINATES
	EXISTING GROUND	46	LOT NUMBER
	SANITARY SEWER MANHOLE		PAVEMENT
	CLEAN-OUT		
	4" PVC SS SERVICE		
	PVC SS MAIN		SANITARY SEWER SERVICE AT MAINLINE I.E. (PROFILE)

DRAWN BY_____ DATE _____

DRAWN BY_____ DATE _____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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

HARRY P. JONES — STATE OF WASHINGTON — 9478 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

AS-BUILT

SHIELDS ESTATES
EAST & WEST RAINIER COURT
SANITARY SEWER: PLAN & PROFILE

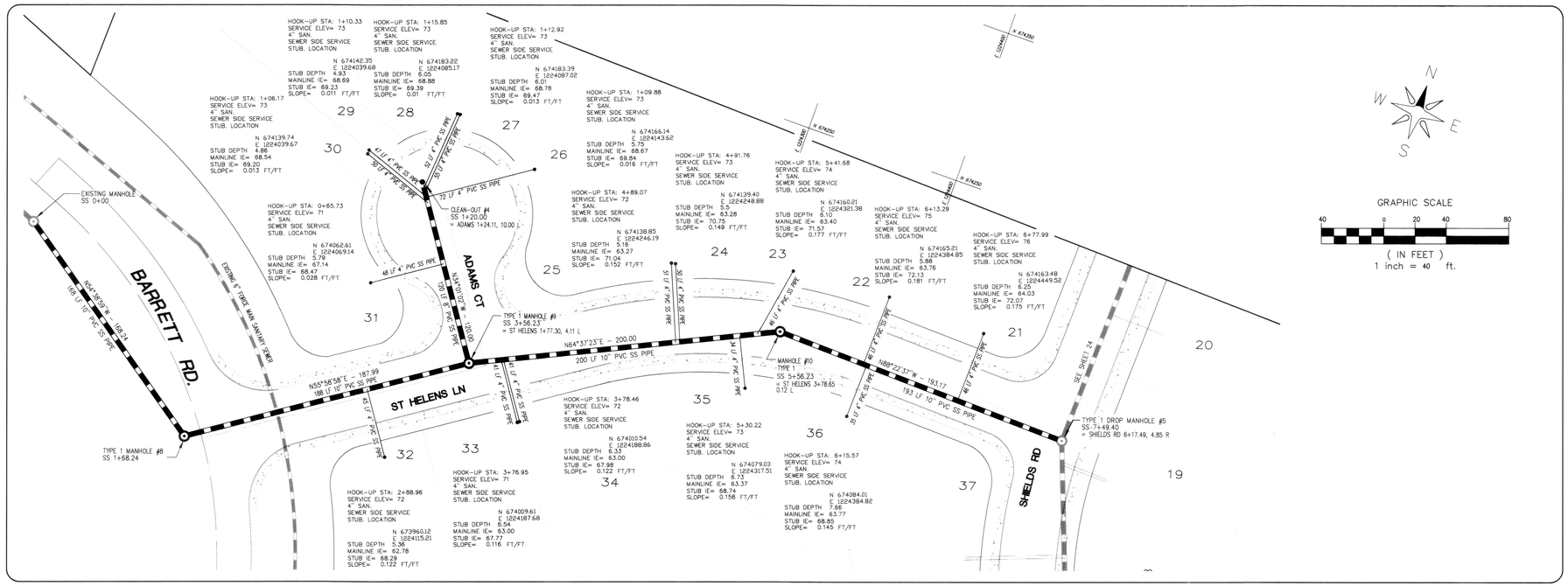
DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

SHEET 25 OF 35

D0228.DWG 3/10/06 KR

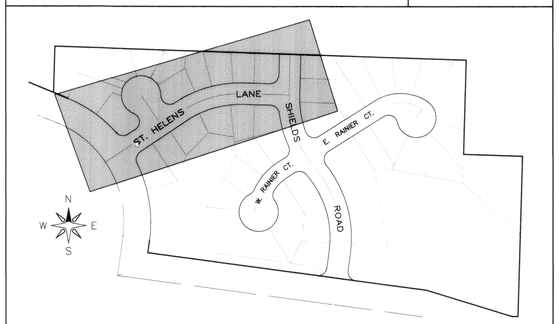
E:\97015\AB-SW02 Wed Apr 08 18:09:50 1998 DALE BUYS

A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28 TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.



SANITARY SEWER - ST. HELENS / ADAMS

JOB NO. 97015



REVISIONS

NO	DATE	BY	NOTE
1.	6-19-97	A.K.	REVISE PER AGENCY REVIEW
2.			
3.			
4.			
5.			

CONTROL DATUM

HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: CASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E, W.M.
Y: 673,433.53
X: 1,226,474.60

MERIDIAN: SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 28, N88°23'49"W

VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050 NORTH OF SMITH ROAD ON THE FRONTAGE ROAD EAST OF I-5
ELEVATION = 81.03

SANITARY SEWER NOTES

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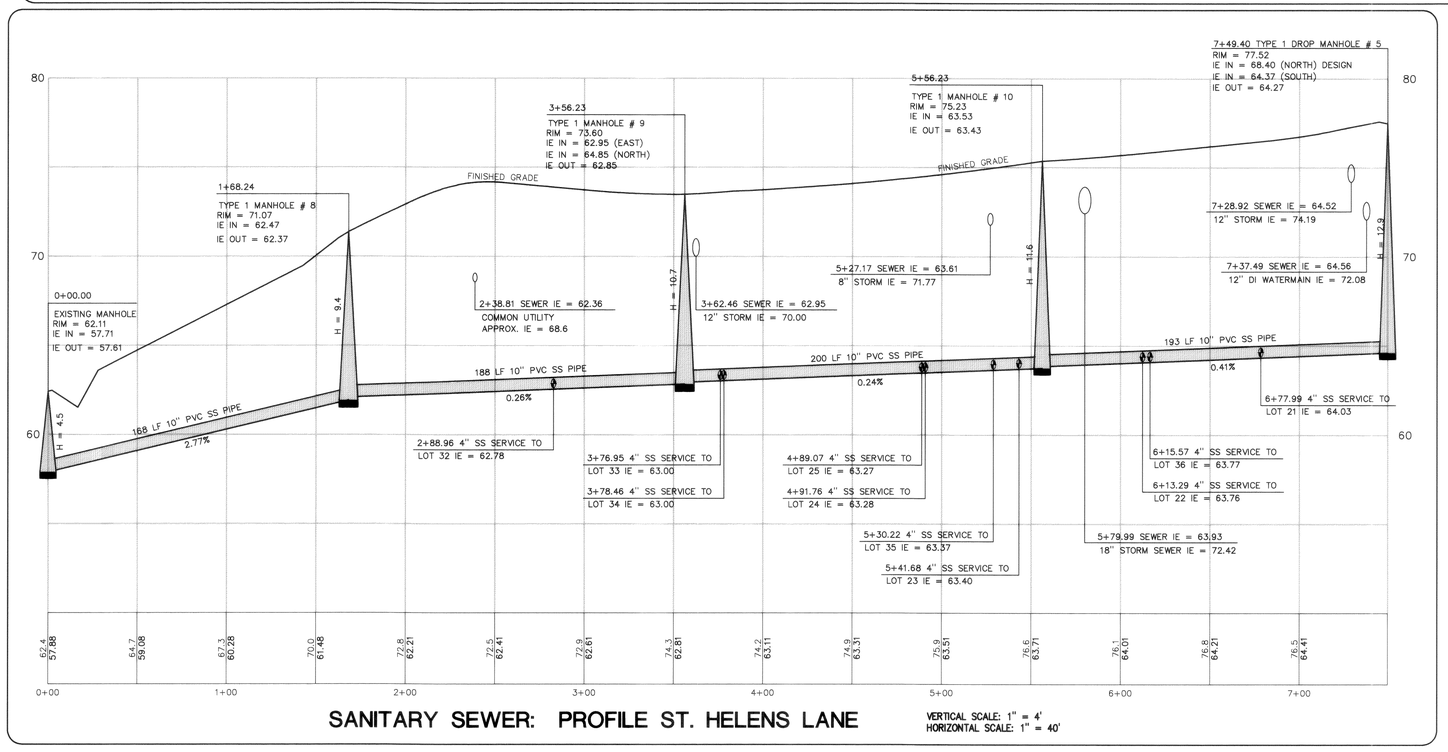
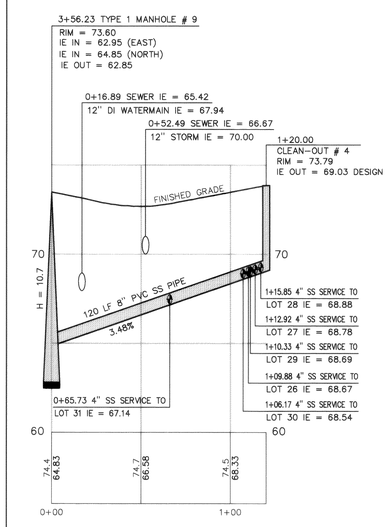


SANITARY SEWER: PROFILE ST. HELENS LANE

VERTICAL SCALE: 1" = 4'
HORIZONTAL SCALE: 1" = 40'



SANITARY SEWER PROFILE ADAMS COURT

VERTICAL SCALE: 1" = 4'
HORIZONTAL SCALE: 1" = 40'

LEGEND

	CENTERLINE	376.0	EXISTING GROUND ELEVATION
	LOT LINES	373.70	FINISHED GRADE ELEVATION
R/W	PROPERTY/ROW LINE	Y XXX	ABBREVIATED LAMBERT GRID COORDINATES
	LIMITED ACCESS		
	EXISTING GROUND	46	LOT NUMBER
	SANITARY SEWER MANHOLE		PAVEMENT
	CLEAN-OUT		
	4" PVC SS SERVICE		
	PVC SS MAIN		SANITARY SEWER SERVICE AT MAINLINE (I.E. PROFILE)

DRAWN BY_____ DATE _____
DRAWN BY_____ DATE _____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I 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

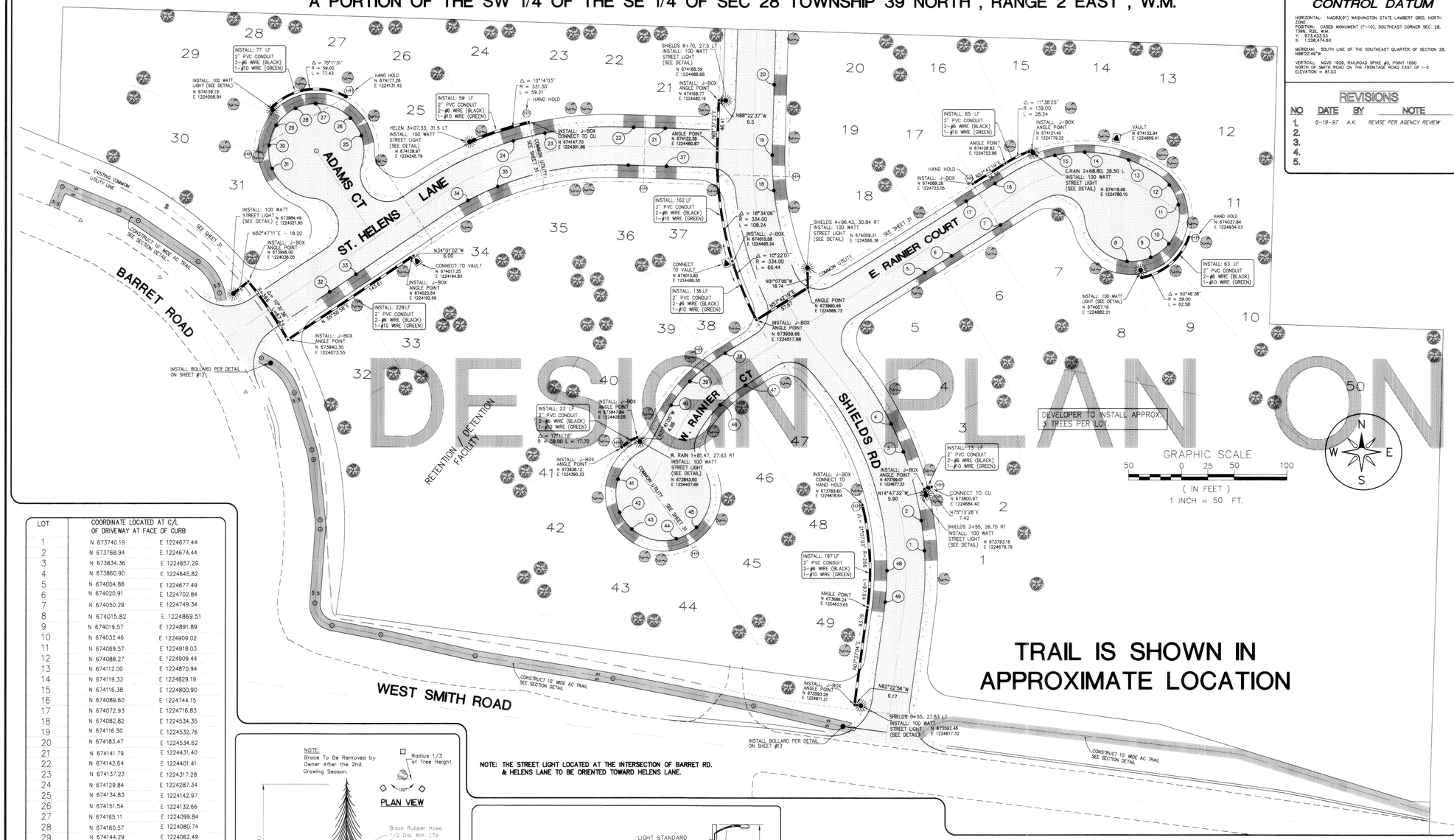
HARRY P. JONES STATE OF WASHINGTON 8416 REGISTERED PROFESSIONAL ENGINEER
EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

AS-BUILT
SHIELDS ESTATES
SANITARY SEWER PLAN & PROFILE:
ST. HELENS LN. / ADAMS CT.

DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON **APPROVED**
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

A PORTION OF THE SW 1/4 OF THE SE 1/4 OF SEC 28 TOWNSHIP 39 NORTH , RANGE 2 EAST , W.M.



NOTE: THE STREET LIGHT LOCATED AT THE INTERSECTION OF BARRET RD. & HELENS LANE TO BE ORIENTED TOWARD HELENS LANE.

CONTROL DATUM

HORIZONTAL: NAD83(91) WASHINGTON STATE LAMBERT GRID, NORTH ZONE
POSITION: CASED MONUMENT (F-10), SOUTHEAST CORNER SEC. 28, T39N, R2E, W.M.
Y: 673,433.53
X: 1,226,474.60

MERIDIAN: SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 28, N88°22'49"W

VERTICAL: NGVD 1929, RAILROAD SPIKE #3, POINT 1050
NORTH OF SMITH ROAD ON THE FRONTAGE ROAD EAST OF I-5
ELEVATION = 81.03

REVISIONS

NO	DATE	BY	NOTE
1.	6-19-97	A.K.	REVISE PER AGENCY REVIEW
2.			
3.			
4.			
5.			

STREET LIGHTING / LANDSCAPING

LEGEND

- 1" PVC CONDUIT
- PROPOSED COMMON UTILITY
- EX. COMMON UTILITY
- EX. COMMON UTILITY (TO BE ABANDONED)
- DRIVEWAY
- 10' WIDE AC PAVED TRAIL
- PROP. STREET LIGHT
- PROP. PUGET HANDHOLE
- PROP. PUGET VAULT
- DRIVEWAY C/L AT CURB POINT
- WESTERN RED CEDAR (DEVELOPER TO INSTALL)
- DOUGLAS FIR (DEVELOPER TO INSTALL)

LIGHT STANDARD BASE

Light standard bases shall be as shown on plan. The concrete base shall be 24" x 24" x 23" deep on residential street lamp posts and 36" x 36" x 60" deep on Chandler street lamp posts. The concrete used shall conform to the Standard Specifications.

The top-of-concrete base shall be flush finish grade. Forms shall be used while placing the base, as the concrete must bear against undisturbed earth.

CONDUIT

PVC conduit shall be furnished and installed between junction boxes and standards as detailed on the Plans. All conduit to be a minimum depth of 18 inches below finished grade, at locations shown on the Plans or designated by the Engineer. Fittings shall be the same material.
All conduit shall be installed in compliance with National Electric Code (NEC) at locations shown on the Plans or designated by the Engineer.

JUNCTION BOXES

Junction Boxes conforming to WSDOT Standard Plan J-11a (with the exception that lids shall be hot-dip galvanized and bear the legend "lighting"), shall be furnished and installed at such locations shown on the plans or designated by the Engineer. Unless otherwise directed by the Engineer, the junction boxes shall be placed on 6 inch gravel burrow cushion. All cover cover plates and metal surfaces for junction boxes shall be hot-dipped galvanized. Conduit into junction boxes shall be no more than 5 inches and no less than 3 inches from the bottom of the box surface. Conduit entering through the bottom of the junction box shall be located near the end walls to leave the major portion clear. At all outlets conduit shall enter through the direction of the run terminating within three inches nearest its entry location and have ball ends. Care shall be taken to ensure a near and convenient arrangement of conduit as outlined in Section 8-20.3(5) of 1994 APWA Standard Specifications. Junction boxes and lids shall be grounded by a method approved by the Engineer.

STREET LIGHTING STANDARDS

Street Lighting standards shall be furnished and installed on standard bases, shall be set plumb, and the base shall be grouted to cover leveling nuts and to fill the void under base plate with a non-shrinking grout. Top of concrete base shall be flush with finished grade.

Street lighting standards shall be provided and installed where shown on the Plans and/or as designated by the Engineer.
The standard shall be square tapered, 18 feet high, prestressed concrete, anchor base spun hollow standards machine made in steel molds by the centrifugal process. Prestressing wire, gauging, and other reinforcement shall be SEQ – 5.7 meter poles or equal approved by the Engineer with exposed natural aggregate finish #113.

STREET LIGHTING LUMINAIRE

Street lighting luminaires shall be the cutoff type with one piece extruded aluminum rectangular housing. Lens shall be shatterproof glass, flat tempered in an extruded aluminum frame. Reflectors shall be provided and the lamp selection such that the fixture produces an IES/ANSI Short Type 2 distribution with essentially complete light cutoff above 75 degrees from Nadir. The luminaire housing shall be bracket-arm mounted. The ballast shall be rated 240 volts and be of the Autoregulator type. The ballast shall be suitable for operating a 100-watt high-pressure sodium lamp. The luminaire shall be bolted to the pole by means of cast inserts and this detail shall be coordinated with the pole manufacturer to ensure proper fit. The complete lumiaire kit shall have a bronze alkkydemelamine baked enamel finish. No fusing shall be located in the luminaire.

WIRING

All wire shall conform to WSDOT Specifications. Conductors above grade and up the poles shall be copper, No. 10 AWG or larger and shall be stranded. Insulation shall be Type THW or better, 600V minimum rated, 75° C, and be color-coded in a consistant manner.

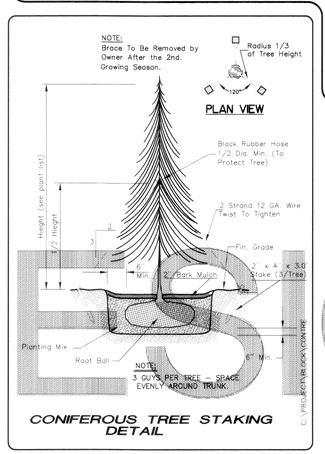
The Contractor shall provide a complete grounding system with grounding continuity throughout the system. Ground rods shall be bare-stranded copper clad 5/8" x 8" providing 15 ohms maximum resistance. Ground wire shall be bare-stranded copper, No. 12 AWG or larger.

All splices below grade shall be watertight. They shall be made using an ESNA, SEC or equal-type splice kit.

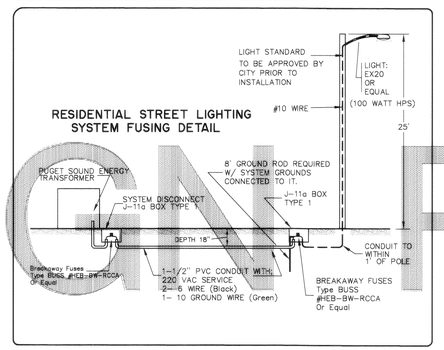
Splices above grade shall be with solderless connectors and be taped.
All wiring in metal luminaire poles shall be fused with breakaway fusing per WSDOT Standard plan J-1e.

All wiring in concrete poles shall have waterproof breakaway fusing installed in the adjacent j-box as per DETAIL THIS SHEET

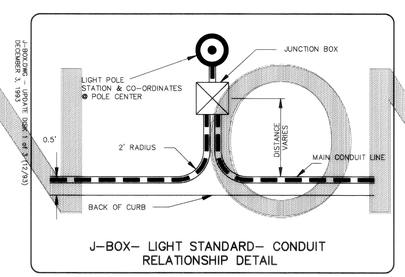
LOT	COORDINATE LOCATED AT C/L OF DRIVEWAY AT FACE OF CURB	
1	N 673740.19	E 1224677.44
2	N 673768.94	E 1224674.44
3	N 673834.36	E 1224657.29
4	N 673860.90	E 1224645.82
5	N 674004.88	E 1224677.49
6	N 674020.91	E 1224702.84
7	N 674050.29	E 1224749.34
8	N 674015.82	E 1224869.51
9	N 674019.57	E 1224891.89
10	N 674032.46	E 1224909.02
11	N 674069.57	E 1224918.03
12	N 674088.27	E 1224909.44
13	N 674112.00	E 1224870.94
14	N 674119.33	E 1224829.19
15	N 674116.38	E 1224800.90
16	N 674089.60	E 1224744.15
17	N 674072.93	E 1224716.83
18	N 674082.82	E 1224534.35
19	N 674116.50	E 1224532.76
20	N 674183.47	E 1224534.62
21	N 674141.79	E 1224431.40
22	N 674142.64	E 1224401.41
23	N 674137.23	E 1224317.28
24	N 674129.84	E 1224287.34
25	N 674134.83	E 1224142.97
26	N 674151.54	E 1224132.66
27	N 674165.11	E 1224099.84
28	N 674160.57	E 1224080.74
29	N 674144.29	E 1224062.49
30	N 674125.46	E 1224055.76
31	N 674103.17	E 1224058.75
32	N 673986.35	E 1224113.18
33	N 674003.14	E 1224138.05
35	N 674073.21	E 1224244.28
36	N 674086.56	E 1224272.63
36	N 674106.77	E 1224396.34
37	N 674105.75	E 1224432.58
38	N 673927.99	E 1224488.45
39	N 673900.97	E 1224455.01
40	N 673878.36	E 1224437.30
41	N 673807.96	E 1224386.95
42	N 673776.34	E 1224388.56
43	N 673760.48	E 1224400.13
44	N 673751.05	E 1224442.29
45	N 673762.20	E 1224461.37
46	N 673878.87	E 1224483.72
47	N 673897.43	E 1224507.48
48	N 673721.13	E 1224641.99
49	N 673691.17	E 1224640.36



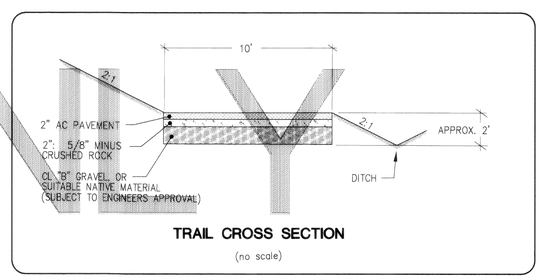
CONIFEROUS TREE STAKING DETAIL



NOTE:
APPROVAL OF THESE PLANS DOES NOT CONSTITUTE A OBLIGATION ON THE PART OF THE OWNER TO CONSTRUCT AND/OR INSTALL ANY LANDSCAPE ELEMENTS SHOWN HEREON EXCEPT THOSE STREET-TREE COMPONENTS REQUIRED BY CITY ORDINANCE. OWNER MAY ELECT TO INSTALL ALL OR SOME OF THE NON-COMPULSORY COMPONENTS SHOWN HEREON.



J-BOX- LIGHT STANDARD- CONDUIT RELATIONSHIP DETAIL



TRAIL CROSS SECTION
(no scale)

DRAWN BY_____ DATE _____
DRAWN BY_____ DATE _____

JOB # 97015

SHIELDS ESTATES

FOR:
TEITGE, WILLIAMS & McCOLLUM INVESTMENTS, INC.

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THIS PLAN IS TO BE USED SOLELY FOR GRAPHICAL PURPOSES. APPROXIMATE LOCATIONS AND UTILITIES ARE SHOWN. PRECISE LOCATIONS HAVE NOT BEEN FIELD VERIFIED.

HARRY P. JONES, PE — 6-8-98 DATE

HARRY P. JONES — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — EXPIRES: MAY 19, 1998

JONES ENGINEERS INCORPORATED, P.S.
CONSULTING ENGINEERS
851 COHO WAY, SUITE 307
BELLINGHAM, WA 98225 (360) 733-8888

SHIELDS ESTATES
LANDSCAPING, STREET LIGHTING PLAN & DETAILS
TRAIL GEOMETRY

DEPARTMENT OF PUBLIC WORKS
FERNDALE, WASHINGTON
APPROVED
This plan has been reviewed and found to be in conformance with department standards.
CITY ENGINEER..... DATE.....

SHEET 30 OF 35

C:\PROJECT\BLOCK\CENTRE

E:\97015\AB\land Wed Apr 08 16:42:51 1998 DALE BUYS