

ITEM 550

CHAIN LINK FENCE

550.1. DESCRIPTION. FURNISH, INSTALL, REMOVE, REPAIR, OR REPLACE CHAIN LINK FENCE AND GATES.

550.2. MATERIALS. BEFORE INSTALLATION OF THE CHAIN LINK FENCE, FURNISH CERTIFICATION FROM THE FENCE MATERIALS MANUFACTURER STATING THAT ALL FENCING MATERIALS COMPLY WITH THE REQUIREMENTS OF THIS ITEM. USE ONLY NEW MATERIALS.

A. GENERAL. FURNISH MATERIALS IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS. WHEREVER THE SPECIFICATIONS AND PLANS CONFLICT, THE PLANS SHALL GOVERN.

B. WIRE FABRIC. PROVIDE WIRE FABRIC WITH:

1. 9 GAUGE (0.148 IN. DIAMETER) STEEL WIRE WITH A MINIMUM BREAKING STRENGTH OF 1,290 LB. MEETING ASTM A 392 CLASS 1 OR ASTM A 491;
2. MESH SIZE OF 2 IN. $\pm 1/8$ IN. BETWEEN PARALLEL WIRES WITH AT LEAST 7 MESHES IN A VERTICAL DIMENSION OF 23 IN. ALONG THE DIAGONALS OF THE OPENINGS

3. KNUCKLED SELVAGES AT THE TOP AND BOTTOM EDGE OF THE FABRIC, UNLESS OTHERWISE SHOWN ON THE PLANS.

C. POSTS. PROVIDE POSTS OF THE SIZE AND WEIGHT SHOWN ON THE PLANS. DO NOT PROVIDE REROLLED OR OPEN-SEAM POSTS. USE MATERIAL MEETING ASTM F 1083 FOR ALL POSTS. WHEN SPECIFIED, FURNISH THIN-WALL, HIGH-STRENGTH PIPE POSTS MANUFACTURED BY COLD ROLLING USING STEEL STRIP CONFORMING TO ASTM A 1011, CS (COMMERCIAL STEEL).

D. POST CAPS. PROVIDE MALLEABLE IRON POST CAPS DESIGNED TO EXCLUDE ALL MOISTURE. IF BARBED WIRE IS SHOWN ON THE PLANS, FURNISH BARBED WIRE SUPPORT ARMS INTEGRAL WITH THE POST CAPS. IF TOP RAIL IS SHOWN ON THE PLANS, FURNISH POST CAPS WITH AN OPENING FOR THE TOP RAIL. POST CAPS MUST HAVE A 2-IN. SKIRT.

E. GATES. PROVIDE GATES FABRICATED FROM ROUND SECTIONS OF PIPE OF THE SIZE AND WEIGHT SHOWN ON THE PLANS. USE MATERIAL MEETING ASTM F 1083 FOR ALL GATE PIPES. FOR EACH GATE, INCLUDE:

1. CORNER AND TEE FITTINGS OF MALLEABLE IRON OR PRESSED STEEL WITH MEANS FOR ATTACHING DIAGONAL BRACING MEMBERS;
 2. HINGES OF MALLEABLE IRON ALLOWING A FULL 180° SWING, EASILY OPERATED BY ONE PERSON;
 3. BALL-AND-SOCKET-TYPE BOTTOM HINGES THAT DO NOT TWIST OR TURN FROM THE ACTION OF THE GATE AND PREVENT THE CLOSED GATE FROM BEING LIFTED OFF THE HINGES;
 4. A POSITIVE STOP THAT PREVENTS ANY PORTION OF THE GATE FROM SWINGING OVER AN ADJACENT TRAFFIC LANE;
 5. MALLEABLE IRON PULLEY SYSTEMS FOR ROLL TYPE GATE (ONLY WHEN REQUIRED);
 6. DIAGONAL BRACES CONSISTING OF 3/8-IN.-DIAMETER CABLE WITH TURNBUCKLES, 2 TO EACH GATE FRAME, AND, FOR VEHICLE GATES, A VERTICAL PIPE BRACE OF THE SIZE AND WEIGHT SHOWN ON THE PLANS AT THE CENTER OF EACH GATE LEAF;
 7. LATCHES OF MALLEABLE IRON OR STEEL FOR SINGLE GATES WITH A SINGLE-FORK LATCH AND PADLOCK EYE THAT WILL KEEP THE GATE CLOSED;
 8. TWO FORK LATCHES MOUNTED ON A CENTER PLUNGER ROD WITH A PADLOCK EYE FOR DOUBLE-LEAF GATES;
 9. HOLDBACKS FOR EACH LEAF OF VEHICULAR GATES, WITH A SEMI-AUTOMATIC HOLDBACK CATCH ANCHORED AT LEAST 12 IN. INTO A 12 IN.-DIAMETER BY 24 IN.-DEEP CONCRETE FOOTING; AND
 10. A MALLEABLE IRON CENTER REST, DESIGNED TO RECEIVE THE PLUNGER ROD ANCHORED AS SHOWN ON THE PLANS FOR ALL DOUBLE-LEAF GATES.
- F. TOP RAIL. WHEN SHOWN ON THE PLANS, PROVIDE TOP RAIL MANUFACTURED FROM 1.660 IN. OD STANDARD WEIGHT (SCHEDULE 40) STEEL PIPE WEIGHING 2.27 LB. PER FOOT OR HIGH-STRENGTH PIPE WEIGHING 1.82 LB. PER FOOT. USE MATERIAL MEETING ASTM F 1083 FOR ALL TOP RAIL PIPES. USE COUPLINGS DESIGNED TO ALLOW FOR EXPANSION OF THE TOP RAIL.

G. TENSION WIRE. USE 7 GAUGE (0.177-IN.) CARBON STEEL WIRE WITH A MINIMUM BREAKING STRENGTH OF 1,950 LB. FOR THE BOTTOM EDGE OF ALL FENCE FABRIC, AND FOR THE TOP EDGE OF FENCE FABRIC WHEN A TOP RAIL IS NOT SPECIFIED.

H. TRUSS BRACING. PROVIDE TRUSS BRACING AS SHOWN ON THE PLANS.

I. CABLES. PROVIDE 7-WIRE STRAND CABLES MANUFACTURED OF GALVANIZED ANNEALED STEEL AT LEAST 3/8 IN. IN DIAMETER.

J. BARBED WIRE. WHEN SPECIFIED ON THE PLANS, PROVIDE 3 STRANDS OF TWISTED 12.5 GAUGE BARBED WIRE WITH 2-POINT, 14 GAUGE BARBS SPACED APPROXIMATELY 5 IN. APART CONFORMING TO ASTM A 121 OR ASTM A 585.

K. BARBED WIRE SUPPORT ARMS. WHEN BARBED WIRE IS SPECIFIED ON THE PLANS, PROVIDE SUPPORT ARMS AT AN ANGLE OF 45° FROM VERTICAL, WITH CLIPS FOR ATTACHING 3 STRANDS OF BARBED WIRE TO EACH SUPPORT ARM AND SUFFICIENT STRENGTH TO SUPPORT A 200-LB. WEIGHT APPLIED AT THE OUTER STRAND.

L. STRETCHER BARS. PROVIDE STRETCHER BARS MADE OF FLAT STEEL AT LEAST 3/16 IN. BY 3/4 IN. AND NOT MORE THAN 2 IN. SHORTER THAN THE FABRIC HEIGHT. PROVIDE 1 STRETCHER BAR FOR EACH GATE AND END POST AND 2 STRETCHER BARS FOR EACH CORNER AND PULL POST.

M. GROUNDS. NA

N. MISCELLANEOUS FITTINGS AND FASTENERS. FURNISH IN SUFFICIENT QUANTITIES TO ERECT ALL FENCING MATERIALS IN A PROPER MANNER. FURNISH FITTINGS FOR POSTS FROM PRESSED OR ROLLED STEEL, FORGED STEEL, MALLEABLE IRON OR WROUGHT IRON OF GOOD COMMERCIAL QUALITY SPACED AS SHOWN ON THE PLANS.

O. COATINGS. UNLESS SPECIFIED ON THE PLANS, HOT-DIP GALVANIZE ALL MATERIALS. FABRIC, TENSION WIRE, AND BARBED WIRE MAY BE ALUMINUM-COATED OR ALLOY-COATED IF APPROVED. WHEN SHOWN ON THE PLANS, ADDITIONALLY COAT ALL MATERIAL EXCEPT BOLTS, NUTS, AND WASHERS WITH THERMALLY FUSED POLYVINYL CHLORIDE (PVC) IN ACCORDANCE WITH ASTM F 668, CLASS 2B, MEETING THE SPECIFIED COLOR.

1. FABRIC.
 - A. GALVANIZING. HOT-DIP GALVANIZE IN ACCORDANCE WITH ASTM A 392, CLASS 1.
 - B. ALUMINUM COATING. ALUMINUM-COAT IN ACCORDANCE WITH ASTM A 491.
 - C. ALLOY COATING. COAT WITH ZINC-5% ALUMINUM-MISCHMETAL ALLOY (ZN-5A1-MM) IN ACCORDANCE WITH ASTM F 1345, CLASS 1.
2. POSTS.
 - A. INSIDE AND OUTSIDE GALVANIZING. HOT-DIP GALVANIZE INSIDE AND OUTSIDE IN CONFORMANCE WITH ASTM F 1083.
 - B. ALLOY COATING. COAT INSIDE AND OUTSIDE WITH ZN-5A1-MM IN ACCORDANCE WITH ASTM F 1043, CLASS C.
3. BRACES AND GATES.
 - A. GALVANIZING. HOT-DIP GALVANIZE BRACES AND GATES INSIDE AND OUT IN CONFORMANCE WITH ASTM F 1083. ADD ADDITIONAL ZINC COAT TO G120 RATING.
 - B. ALLOY COATING. COAT INSIDE AND OUT WITH (ZN-5A1-MM) IN ACCORDANCE WITH ASTM F 1043, CLASS C.

4. FITTINGS, BOLTS, AND OTHER MISCELLANEOUS HARDWARE. GALVANIZE ALL FITTINGS, BOLTS AND MISCELLANEOUS HARDWARE IN CONFORMANCE WITH

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5. TENSION WIRE. ZINC-COAT TENSION WIRE WITH A MINIMUM COATING OF 0.80 OZ./SQ. FT. OR ALUMINUM-COAT WITH A MINIMUM COATING OF 0.30 OZ./SQ. FT.

6. BARBED WIRE. ZINC-COAT BARBED WIRE IN ACCORDANCE WITH ASTM A 121 (0.80 OZ./SQ. FT.) OR ALUMINUM-COAT IN ACCORDANCE WITH ASTM A 585 (0.30 OZ./SQ. FT.).

7. PULL CABLE. ZINC-COAT PULL CABLE WITH A MINIMUM COATING OF 0.80 OZ./SQ. FT. OF INDIVIDUAL-WIRE SURFACE WHEN TESTED IN CONFORMANCE WITH ASTM A 116.

550.3. CONSTRUCTION. ERECT THE CHAIN LINK FENCE TO THE LINES AND

GRADES ESTABLISHED ON THE PLANS.

A. ERECTION OF POSTS. INSTALL POSTS AS SHOWN ON THE PLANS. PLUMB AND PERMANENTLY POSITION POSTS WITH ANCHORAGES FIRMLY SET BEFORE FABRIC IS PLACED. BRACE CORNER AND PULL POSTS AS SHOWN ON THE PLANS.

1. POST SPACING. LINE POSTS AT MOST 10 FT. APART, PULL POSTS AT MOST 500 FT. APART AND AT EACH CHANGE IN DIRECTION EXCEEDING 20° VERTICALLY, CORNER POSTS AT EACH HORIZONTAL ANGLE POINT. INSTALL CABLES ON ALL TERMINAL POSTS AND EXTEND TO ADJACENT POSTS. INSTALL CABLES ON EACH SIDE OF CORNER AND PULL POSTS WITH A 3/8-IN. DROP-FORGED EYE-AND-EYE OR EYE-AND-CLEVIS TURNBUCKLE, UNLESS OTHERWISE SHOWN ON THE PLANS.

2. POSTHOLES. DRILL HOLES FOR CONCRETE FOOTINGS FOR ALL POSTS TO PROVIDE FOOTINGS OF THE DIMENSIONS SHOWN ON THE PLANS.

AFTER THE POSTS ARE SET AND PLUMBED, FILL THE HOLE IN THE SOLID ROCK WITH GROUT CONSISTING OF 1 PART HYDRAULIC CEMENT AND 3 PARTS CLEAN, WELL-GRADED SAND. OTHER GROUTING MATERIALS MAY BE USED IF APPROVED. THOROUGHLY WORK THE GROUT INTO THE HOLE, LEAVING NO VOIDS. CONSTRUCT CONCRETE FOOTINGS FROM THE SOLID ROCK TO THE TOP OF THE GROUND.

3. GATE POSTS. ALIGN THE TOPS OF ALL GATE FRAMES WITH THE FENCING TOP TENSION WIRE OR TOP RAIL.

4. CONCRETE FOOTINGS. CENTER POSTS IN THEIR FOOTINGS. PLACE CONCRETE AND COMPACT BY TAMPING OR OTHER APPROVED METHODS. MACHINE MIX ALL BATCHES OF CONCRETE OVER 1/2 CU. YD. HAND MIXING CONCRETE IS ALLOWED ON BATCHES UNDER 1/2 CU. YD.

B. ERECTION OF FABRIC. AFTER ALL POSTS HAVE BEEN PERMANENTLY POSITIONED AND ANCHORAGES FIRMLY SET, PLACE THE FABRIC WITH THE CABLES DRAWN TAUT WITH THE TURNBUCKLES. SECURE ONE END AND APPLY ENOUGH TENSION TO THE OTHER END TO REMOVE ALL SLACK BEFORE MAKING ATTACHMENTS. UNLESS OTHERWISE SHOWN ON THE PLANS, CUT THE FABRIC AND INDEPENDENTLY ATTACH EACH SPAN AT ALL CORNER POSTS AND PULL POSTS.

FOLLOW THE FINISHED CONTOUR OF THE SITE WITH THE BOTTOM EDGE OF FABRIC LOCATED APPROXIMATELY 2 IN. ABOVE THE GRADE.

FASTEN FABRIC AT 12 IN. INTERVALS TO THE TOP AND BOTTOM TENSION WIRES BETWEEN POSTS. WHEN TOP RAIL IS SHOWN ON THE PLANS, FASTEN THE FABRIC IN THE SAME MANNER. USE STEEL WIRE FABRIC TIES OF 9 GAUGE STEEL OR LARGER. FASTEN FABRIC TO TERMINAL POSTS BY STEEL STRETCHER BARS AND STRETCHER BAR BANDS FITTED WITH CARRIAGE BOLTS AND NUTS OF THE SIZE AND SPACING SHOWN ON THE PLANS. USE STRETCHER BARS TO FASTEN ENDPOSTS, PULL POSTS, CORNER POSTS, AND GATEPOSTS WITH STRETCHER BAR BANDS AT INTERVALS OF AT MOST 15 IN. ATTACH STRETCHER BARS TO TERMINAL POSTS WITH 1 IN. \times 1/8 IN. FLAT STEEL BANDS WITH 3/8-IN. CARRIAGE BOLTS AT INTERVALS UP TO 15 IN.

C. REPAIR OF COATINGS. REPAIR DAMAGED ZINC COATING

CHAIN LINK FENCE REPAIR AND REPLACEMENT

AT VARIOUS OAHU DISTRICT AIRPORTS

CHAIN LINK FENCE AND
GATES
SPECIFICATIONS

DESIGN: OME 10/03/2019
DRAWN BY:
APPROVED:
PROJECT NO.:

DRAWING NO:
EXHIBIT
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SHEET 1 OF 1